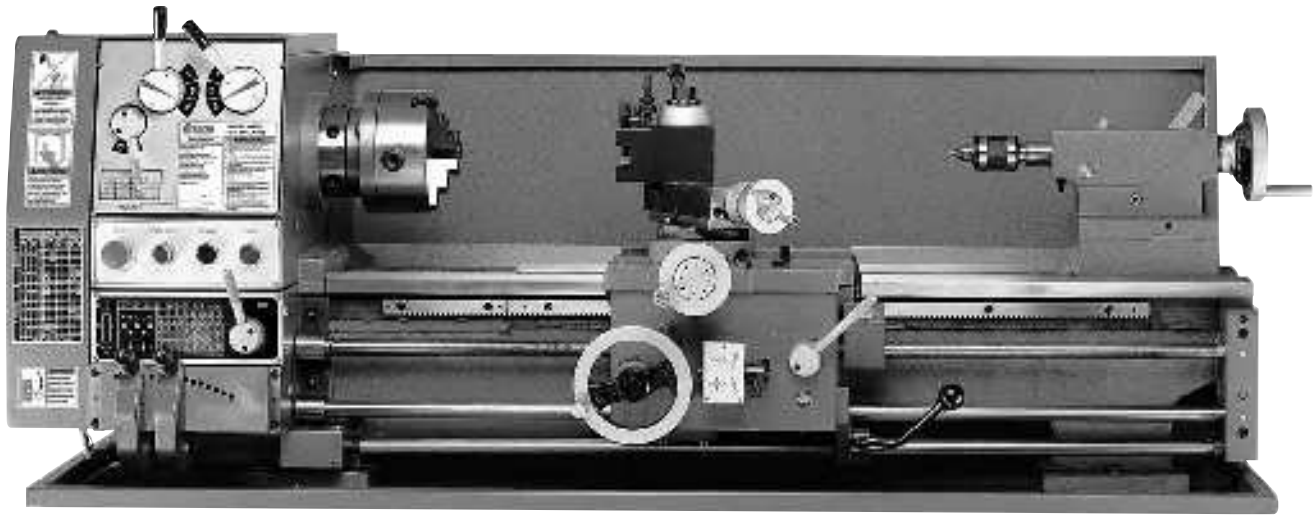
MODEL G4002/G4003
GEAR-HEAD LATHE
OWNER'S MANUAL
(For models manufactured since 3/14)



(Model G4003 Shown)

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#0350 PRINTED IN CHINA

⚠ WARNING!

This manual provides critical safety instructions on the proper setup, operation, maintenance, and service of this machine/tool. Save this document, refer to it often, and use it to instruct other operators.

Failure to read, understand and follow the instructions in this manual may result in fire or serious personal injury—including amputation, electrocution, or death.

The owner of this machine/tool is solely responsible for its safe use. This responsibility includes but is not limited to proper installation in a safe environment, personnel training and usage authorization, proper inspection and maintenance, manual availability and comprehension, application of safety devices, cutting/sanding/grinding tool integrity, and the usage of personal protective equipment.

The manufacturer will not be held liable for injury or property damage from negligence, improper training, machine modifications or misuse.

⚠ WARNING!

Some dust created by power sanding, sawing, grinding, drilling, and other construction activities contains chemicals known to the State of California to cause cancer, birth defects or other reproductive harm. Some examples of these chemicals are:

- **Lead from lead-based paints.**
- **Crystalline silica from bricks, cement and other masonry products.**
- **Arsenic and chromium from chemically-treated lumber.**

Your risk from these exposures varies, depending on how often you do this type of work. To reduce your exposure to these chemicals: Work in a well ventilated area, and work with approved safety equipment, such as those dust masks that are specially designed to filter out microscopic particles.

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INTRODUCTION

Machine Description

The purpose of a metal lathe is to face, turn, knurl, thread, bore, or cut tapers in a metal workpiece with perfect accuracy.

During typical operations, the lathe spindle rotates the workpiece at various speeds against a fixed cutting tool that is positioned at a particular angle for the desired type of cut.

The cutting tool is mounted on a quick change tool post, which allows cutting tools to be quickly loaded and unloaded.

Opposite of the headstock and spindle is a support device called a tailstock. The tailstock can be slid along the lathe bed and locked in place to firmly support the end of a workpiece.

Contact Info

We stand behind our machines! If you have questions or need help, contact us with the information below. Before contacting, make sure you get the **serial number** and **manufacture date** from the machine ID label. This will help us help you faster.

Grizzly Technical Support
1815 W. Battlefield
Springfield, MO 65807
Phone: (570) 546-9663
Email: techsupport@grizzly.com

We want your feedback on this manual. What did you like about it? Where could it be improved? Please take a few minutes to give us feedback.

Grizzly Documentation Manager
P.O. Box 2069
Bellingham, WA 98227-2069
Email: manuals@grizzly.com

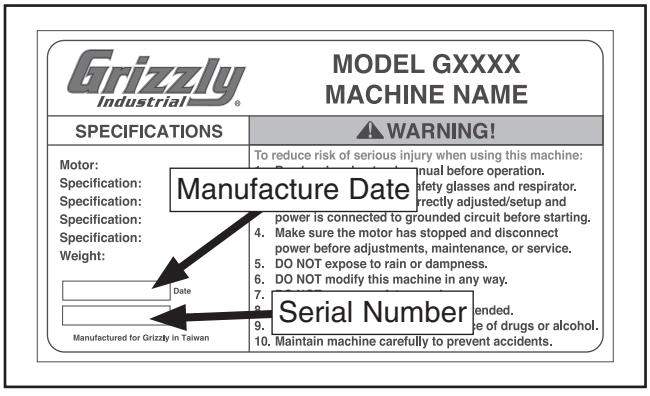
Manual Accuracy

We are proud to provide a high-quality owner's manual with your new machine!

We made every effort to be exact with the instructions, specifications, drawings, and photographs in this manual. Sometimes we make mistakes, but our policy of continuous improvement also means that **sometimes the machine you receive is slightly different than shown in the manual**.

If you find this to be the case, and the difference between the manual and machine leaves you confused or unsure about something, check our website for an updated version. We post current manuals and manual updates for free on our website at **www.grizzly.com**.

Alternatively, you can call our Technical Support for help. Before calling, make sure you write down the **Manufacture Date** and **Serial Number** from the machine ID label (see below). This information is required for us to provide proper tech support, and it helps us determine if updated documentation is available for your machine.



MACHINE DATA SHEET

Customer Service #: (570) 546-9663 · To Order Call: (800) 523-4777 · Fax #: (800) 438-5901

MODEL G4002 12" X 24" GEAR-HEAD, CAM LOCK SPINDLE, LATHE

Product Dimensions:

Weight	913 lbs.
Width (side-to-side) x Depth (front-to-back) x Height	53 x 26 x 23 in.
Footprint (Length x Width)	53 x 23 in.

Shipping Dimensions:

Type	Wood Crate
Content	Machine
Weight	1004 lbs.
Length x Width x Height	59 x 30 x 28 in.
Must Ship Upright	Yes

Electrical:

Power Requirement	220V, Single-Phase, 60 Hz
Prewired Voltage	220V
Full-Load Current Rating	8.5A
Minimum Circuit Size	15A
Connection Type	Cord & Plug
Power Cord Included	No
Recommended Power Cord	"S"-Type, 3-Wire, 14 AWG, 300 VAC
Plug Included	No
Recommended Plug Type	6-15
Switch Type	Control Panel w/Magnetic Switch Protection

Motors:

Main

Horsepower	2 HP
Phase	Single-Phase
Amps	8.5A
Speed	1725 RPM
Type	TEFC Capacitor-Start Induction
Power Transfer	Belt Drive
Bearings	Shielded & Permanently Lubricated
Centrifugal Switch/Contacts Type	Internal

Main Specifications:

Operation Info

Swing Over Bed	12 in.
Distance Between Centers	24 in.
Swing Over Cross Slide	7 in.
Swing Over Saddle	7 in.
Maximum Tool Bit Size	5/8 in.
Compound Travel	3-1/4 in.
Carriage Travel	18-1/2 in.
Cross Slide Travel	6-1/4 in.

Headstock Info

Spindle Bore	1.417 in.
Spindle Taper	MT#5
Number of Spindle Speeds	9
Spindle Speeds	70 – 1400 RPM
Spindle Type	D1-4 Camlock
Spindle Bearings	Tapered Roller
Spindle Length	16 in.
Spindle Length with 3-Jaw Chuck	20-3/4 in.
Spindle Length with 4-Jaw Chuck	20-3/8 in.

Tailstock Info

Tailstock Quill Travel	4 in.
Tailstock Taper	MT#3
Tailstock Barrel Diameter	1.563 in.

Threading Info

Number of Longitudinal Feeds	40
Range of Longitudinal Feeds	0.0011 – 0.0310 in./rev.
Number of Cross Feeds	40
Range of Cross Feeds	0.0004 – 0.0105 in./rev
Number of Inch Threads	40
Range of Inch Threads	4 – 112 TPI
Number of Metric Threads	29
Range of Metric Threads	0.2 – 4.5 mm

Dimensions

Bed Width	7-1/4 in.
Carriage Leadscrew Diameter	0.870 in.
Leadscrew TPI	8 TPI
Carriage Leadscrew Length	36 in.
Steady Rest Capacity	2 in.
Follow Rest Capacity	1 in.
Faceplate Size	10 in.
Feed Rod Diameter	3/4 in.

Other

Optional Stand	G4004

Construction

Base	Cast Iron
Headstock	Cast Iron
End Gears	Flame Hardened Steel
Bed	Induction-Hardened, Precision-Ground Cast Iron
Body	Cast Iron
Paint Type/Finish	Epoxy

Fluid Capacities

Headstock Capacity	3.5 qt.
Headstock Fluid Type	ISO 32 (eg. Grizzly T23963, Mobil DTE Light)
Gearbox Capacity	1 – 2 Pumps
Gearbox Fluid Type	ISO 68 (SB1365, Grizzly T23962, Mobil Vactra 2)
Apron Capacity	0.5 qt.
Apron Fluid Type	ISO 68 (eg. Grizzly T23962, Mobil Vactra 2)

Other Specifications:

Country of Origin ..... China
Warranty ..... 1 Year
Approximate Assembly & Setup Time ..... 1 Hour
Serial Number Location ..... ID Label on Middle of Headstock
ISO 9001 Factory ..... No
Certified by a Nationally Recognized Testing Laboratory (NRTL) ..... No

Features:

Carriage-Mounted On/Off Control Lever
Easy To Use Lever Controls
Full Length Splash Guard
Hardened and Ground Cast-Iron Bed
Threading Dial

Accessories Included:

6" 3-Jaw Chuck w/2 Sets of Jaws
8" 4-Jaw Chuck w/Reversible Jaws
10" Faceplate
Steady Rest
Follow Rest
Quick-Change Tool Post w/Holder
4-Piece Insert Tool Holder Set
Set of Seven Change Gears
Dead Center MT#3 HSS Tip
Dead Center MT#3 Carbide Tip
Live Center MT#3
1/2" Drill Chuck w/MT#3 Arbor
Spindle Sleeve MT#5/MT#3
Oil Can
Toolbox

MACHINE DATA SHEET

Customer Service #: (570) 546-9663 · To Order Call: (800) 523-4777 · Fax #: (800) 438-5901

MODEL G4003 12" X 36" GEAR-HEAD, CAM LOCK SPINDLE, LATHE

Product Dimensions:

Weight	917 lbs.
Width (side-to-side) x Depth (front-to-back) x Height	61 x 23 x 23. in.
Footprint (Length x Width)	61 x 23 in.

Shipping Dimensions:

Type	Wood Crate
Content	Machine
Weight	1020 lbs.
Length x Width x Height	29 x 66 x 29 in.
Must Ship Upright	Yes

Electrical:

Power Requirement	220V, Single-Phase, 60 Hz
Prewired Voltage	220V
Full-Load Current Rating	12A
Minimum Circuit Size	15A
Connection Type	Cord & Plug
Power Cord Included	No
Recommended Power Cord	“S”-Type, 3-Wire, 14 AWG, 300 VAC
Plug Included	No
Recommended Plug Type	6-15
Switch Type	Control Panel w/Magnetic Switch Protection

Motors:

Main

Horsepower	2 HP
Phase	Single-Phase
Amps	8.5A
Speed	1725 RPM
Type	TEFC Capacitor-Start Induction
Power Transfer	Belt Drive
Bearings	Shielded & Permanently Lubricated
Centrifugal Switch/Contacts Type	Internal

Main Specifications:

Operation Info

Swing Over Bed	12 in.
Distance Between Centers	36 in.
Swing Over Cross Slide	7 in.
Swing Over Saddle	7 in.
Maximum Tool Bit Size	5/8 in.
Compound Travel	3-1/4 in.
Carriage Travel	30-1/2 in.
Cross Slide Travel	6-1/4 in.

Headstock Info

Spindle Bore	1.417 in.
Spindle Taper	MT#5
Number of Spindle Speeds	9
Spindle Speeds	70 – 1400 RPM
Spindle Type	D1-4 Camlock
Spindle Bearings	Tapered Roller
Spindle Length	16 in.
Spindle Length with 3-Jaw Chuck	20-3/4 in.
Spindle Length with 4-Jaw Chuck	20-3/8 in.

Tailstock Info

Tailstock Quill Travel	4 in.
Tailstock Taper	MT#3
Tailstock Barrel Diameter	1.570 in.

Threading Info

Number of Longitudinal Feeds	40
Range of Longitudinal Feeds	0.0011 – 0.0310 in./rev.
Number of Cross Feeds	40
Range of Cross Feeds	0.0004 – 0.0105 in./rev
Number of Inch Threads	40
Range of Inch Threads	4 – 112 TPI
Number of Metric Threads	29
Range of Metric Threads	0.2 – 4.5 mm

Dimensions

Bed Width	7-1/4 in.
Carriage Leadscrew Diameter	0.870 in.
Leadscrew TPI	8 TPI
Carriage Leadscrew Length	44 in.
Steady Rest Capacity	2 in.
Follow Rest Capacity	1 in.
Faceplate Size	10 in.
Feed Rod Diameter	3/4 in.

Other

Optional Stand	G4005

Construction

Base	Cast Iron
Headstock	Cast Iron
End Gears	Flame Hardened Steel
Bed	Induction-Hardened, Precision-Ground Cast Iron
Body	Cast Iron
Paint Type/Finish	Epoxy

Fluid Capacities

Headstock Capacity	3.5 qt.
Headstock Fluid Type	ISO 32 (eg. Grizzly T23963, Mobil DTE Light)
Gearbox Capacity	1 – 2 Pumps
Gearbox Fluid Type	ISO 68 (SB1365, Grizzly T23962, Mobil Vactra 2)
Apron Capacity	0.5 qt.
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Other Specifications:

Country of Origin ..... China
Warranty ..... 1 Year
Approximate Assembly & Setup Time ..... 1 Hour
Serial Number Location ..... ID Label
ISO 9001 Factory ..... No
Certified by a Nationally Recognized Testing Laboratory (NRTL) ..... No

Features:

Carriage-Mounted On/Off Control Lever
Easy To Use Lever Controls
Full Length Splash Guard
Hardened and Ground Cast-Iron Bed
Threading Dial
Compatible with G7028, G7029, G7030, & G7031, tool holders

Accessories Included:

6" 3-Jaw Chuck w/2 Sets of Jaws
8" 4-Jaw Chuck w/Reversible Jaws
10" Faceplate
Steady Rest
Follow Rest
Quick-Change Tool Post w/Holder
4-Piece Insert Tool Holder Set
Set of Seven Change Gears
Dead Center MT#3 HSS Tip
Dead Center MT#3 Carbide Tip
Live Center MT#3
1/2" Drill Chuck w/MT#3 Arbor
Spindle Sleeve MT#5/MT#3
Oil Can
Toolbox

Accessories Recommended:

G4005 Lathe Stand for G4003
T10556 Taper Attachment Kit for G4002/G4003/G4003G

SECTION 1: SAFETY

For Your Own Safety, Read Instruction Manual Before Operating This Machine

The purpose of safety symbols is to attract your attention to possible hazardous conditions. This manual uses a series of symbols and signal words intended to convey the level of importance of the safety messages. The progression of symbols is described below. Remember that safety messages by themselves do not eliminate danger and are not a substitute for proper accident prevention measures. Always use common sense and good judgment.

⚠DANGER **Indicates an imminently hazardous situation which, if not avoided, WILL result in death or serious injury.**

⚠WARNING **Indicates a potentially hazardous situation which, if not avoided, COULD result in death or serious injury.**

⚠CAUTION **Indicates a potentially hazardous situation which, if not avoided, MAY result in minor or moderate injury. It may also be used to alert against unsafe practices.**

NOTICE **This symbol is used to alert the user to useful information about proper operation of the machine.**

Safety Instructions for Machinery

⚠WARNING

OWNER'S MANUAL. Read and understand this owner's manual BEFORE using machine.

TRAINED OPERATORS ONLY. Untrained operators have a higher risk of being hurt or killed. Only allow trained/supervised people to use this machine. When machine is not being used, disconnect power, remove switch keys, or lock-out machine to prevent unauthorized use—especially around children. Make your workshop kid proof!

DANGEROUS ENVIRONMENTS. Do not use machinery in areas that are wet, cluttered, or have poor lighting. Operating machinery in these areas greatly increases the risk of accidents and injury.

MENTAL ALERTNESS REQUIRED. Full mental alertness is required for safe operation of machinery. Never operate under the influence of drugs or alcohol, when tired, or when distracted.

ELECTRICAL EQUIPMENT INJURY RISKS. You can be shocked, burned, or killed by touching live electrical components or improperly grounded machinery. To reduce this risk, only allow qualified service personnel to do electrical installation or repair work, and always disconnect power before accessing or exposing electrical equipment.

DISCONNECT POWER FIRST. Always disconnect machine from power supply BEFORE making adjustments, changing tooling, or servicing machine. This prevents an injury risk from unintended startup or contact with live electrical components.

EYE PROTECTION. Always wear ANSI-approved safety glasses or a face shield when operating or observing machinery to reduce the risk of eye injury or blindness from flying particles. Everyday eyeglasses are NOT approved safety glasses.

⚠WARNING

WEARING PROPER APPAREL. Do not wear clothing, apparel or jewelry that can become entangled in moving parts. Always tie back or cover long hair. Wear non-slip footwear to reduce risk of slipping and losing control or accidentally contacting cutting tool or moving parts.

HAZARDOUS DUST. Dust created by machinery operations may cause cancer, birth defects, or long-term respiratory damage. Be aware of dust hazards associated with each workpiece material. Always wear a NIOSH-approved respirator to reduce your risk.

HEARING PROTECTION. Always wear hearing protection when operating or observing loud machinery. Extended exposure to this noise without hearing protection can cause permanent hearing loss.

REMOVE ADJUSTING TOOLS. Tools left on machinery can become dangerous projectiles upon startup. Never leave chuck keys, wrenches, or any other tools on machine. Always verify removal before starting!

USE CORRECT TOOL FOR THE JOB. Only use this tool for its intended purpose—do not force it or an attachment to do a job for which it was not designed. Never make unapproved modifications—modifying tool or using it differently than intended may result in malfunction or mechanical failure that can lead to personal injury or death!

AWKWARD POSITIONS. Keep proper footing and balance at all times when operating machine. Do not overreach! Avoid awkward hand positions that make workpiece control difficult or increase the risk of accidental injury.

CHILDREN & BYSTANDERS. Keep children and bystanders at a safe distance from the work area. Stop using machine if they become a distraction.

GUARDS & COVERS. Guards and covers reduce accidental contact with moving parts or flying debris. Make sure they are properly installed, undamaged, and working correctly BEFORE operating machine.

FORCING MACHINERY. Do not force machine. It will do the job safer and better at the rate for which it was designed.

NEVER STAND ON MACHINE. Serious injury may occur if machine is tipped or if the cutting tool is unintentionally contacted.

STABLE MACHINE. Unexpected movement during operation greatly increases risk of injury or loss of control. Before starting, verify machine is stable and mobile base (if used) is locked.

USE RECOMMENDED ACCESSORIES. Consult this owner's manual or the manufacturer for recommended accessories. Using improper accessories will increase the risk of serious injury.

UNATTENDED OPERATION. To reduce the risk of accidental injury, turn machine ***OFF*** and ensure all moving parts completely stop before walking away. Never leave machine running while unattended.

MAINTAIN WITH CARE. Follow all maintenance instructions and lubrication schedules to keep machine in good working condition. A machine that is improperly maintained could malfunction, leading to serious personal injury or death.

DAMAGED PARTS. Regularly inspect machine for damaged, loose, or mis-adjusted parts—or any condition that could affect safe operation. Immediately repair/replace BEFORE operating machine. For your own safety, DO NOT operate machine with damaged parts!

MAINTAIN POWER CORDS. When disconnecting cord-connected machines from power, grab and pull the plug—NOT the cord. Pulling the cord may damage the wires inside. Do not handle cord/plug with wet hands. Avoid cord damage by keeping it away from heated surfaces, high traffic areas, harsh chemicals, and wet/damp locations.

EXPERIENCING DIFFICULTIES. If at any time you experience difficulties performing the intended operation, stop using the machine! Contact our Technical Support at (570) 546-9663.

Additional Safety for Metal Lathes

⚠WARNING

Serious injury or death can occur from getting entangled in, crushed between, or struck by rotating parts on a lathe! Unsecured tools or workpieces that fly loose from rotating objects can also strike nearby operators with deadly force. To minimize the risk of getting hurt or killed, anyone operating this machine MUST completely heed the hazards and warnings below.

CLOTHING, JEWELRY & LONG HAIR. Tie back long hair, remove jewelry, and do not wear loose clothing or gloves. These can easily get caught on rotating parts and pull you into lathe.

ROTATING PARTS. Always keep hands and body at a safe distance from rotating parts—especially those with projecting surfaces. Never hold anything against rotating workpiece, such as emery cloth, that can pull you into lathe.

GUARDING. Guards and covers protect against entanglement or flying objects. Always ensure they are properly installed while machine is running.

ADJUSTMENT TOOLS. Remove all chuck keys, wrenches, and adjustment tools before turning lathe ***ON***. A tool left on the lathe can become a deadly projectile when spindle is started.

SAFE CLEARANCES. Before starting spindle, verify workpiece has adequate clearance by hand-rotating it through its entire range of motion.

NEW SETUPS. Test each new setup by starting spindle rotation at the lowest speed and standing to the side of the lathe until workpiece reaches full speed and you can verify safe rotation.

SPINDLE SPEEDS. Using spindle speeds that are too fast for the workpiece or clamping equipment can cause rotating parts to come loose and strike nearby people with deadly force. Always use slow spindle speeds with large or non-concentric workpieces. Never exceed rated RPM of the chuck.

LONG STOCK SAFETY. Long stock can whip violently if not properly supported. Always support any stock that extends from the chuck/headstock more than three times its own diameter.

CLEARING CHIPS. Metal chips can be razor sharp. Avoid clearing them by hand or with a rag. Use a brush or vacuum instead.

SECURE WORKPIECE. An improperly secured workpiece can fly off spindle with deadly force. Make sure workpiece is properly secured before starting the lathe.

CHUCKS. Chucks can be heavy and difficult to hold. During installation and removal, protect your hands and precision bed ways by using a chuck cradle or piece of plywood over the bed ways. Use lifting equipment, as necessary, for large chucks.

STOPPING SPINDLE. Always allow spindle to completely stop on its own, or use a brake, if provided. Never put hands or another object on a spinning workpiece to make it stop faster.

CRASHING. A serious explosion of metal parts can occur if cutting tool or other lathe component hits rotating chuck or a projecting part of workpiece. Resulting metal fragments can strike nearby people and lathe will be seriously damaged. To reduce risk of crashing, ALWAYS release automatic feeds after use, NEVER leave lathe unattended, and CHECK all clearances before starting lathe.

COOLANT SAFETY. Coolant can become very toxic through prolonged use and aging. To minimize toxicity, change coolant regularly. When using, position nozzle properly to avoid splashing operator or causing a slipping hazard on floor.

TOOL SELECTION. Cutting with incorrect or dull tooling increases risk of injury from broken or dislodged components, or as a result of extra force required for operation. Always use sharp tooling that is right for the job.

SANDING/POLISHING. To reduce risk of entanglement, never wrap emery cloth around rotating workpiece. Instead, use emery cloth with the aid of a tool or backing board.

MEASURING WORKPIECE. To reduce risk of entanglement, never measure rotating workpieces.

Additional Chuck Safety

⚠WARNING

ENTANGLEMENT. Entanglement with a rotating chuck can lead to death, amputation, broken bones, or other serious injury. Never attempt to slow or stop the lathe chuck by hand, and always roll up long sleeves, tie back long hair, and remove any jewelry or loose apparel BEFORE operating.

CHUCK SPEED RATING. Excessive spindle speeds greatly increase the risk of the workpiece or chuck being thrown from the machine with deadly force. Never use spindle speeds faster than the chuck RPM rating or the safe limits of your workpiece.

USING CORRECT EQUIPMENT. Many workpieces can only be safely turned in a lathe if additional support equipment, such as a tailstock or steady/follow rest, is used. If the operation is too hazardous to be completed with the lathe or existing equipment, the operator must have enough experience to know when to use a different machine or find a safer way.

TRAINED OPERATORS ONLY. Using a chuck incorrectly can result in workpieces coming loose at high speeds and striking the operator or bystanders with deadly force. To reduce the risk of this hazard, read and understand this document and seek additional training from an experienced chuck user before using a chuck.

CHUCK CAPACITY. Avoid exceeding the capacity of the chuck by clamping an oversized workpiece. If the workpiece is too large to safely clamp with the chuck, use a faceplate or a larger chuck if possible. Otherwise, the workpiece could be thrown from the lathe during operation, resulting in serious impact injury or death.

CLAMPING FORCE. Inadequate clamping force can lead to the workpiece being thrown from the chuck and striking the operator or bystanders. Maximum clamping force is achieved when the chuck is properly maintained and lubricated, all jaws are fully engaged with the workpiece, and the maximum chuck clamping diameter is not exceeded.

PROPER MAINTENANCE. All chucks must be properly maintained and lubricated to achieve maximum clamping force and withstand the rigors of centrifugal force. To reduce the risk of a thrown workpiece, follow all maintenance intervals and instructions in this document.

DISCONNECT POWER. Serious entanglement or impact injuries could occur if the lathe is started while you are adjusting, servicing, or installing the chuck. Always disconnect the lathe from power before performing these procedures.

SECTION 2: POWER SUPPLY

Availability

Before installing the machine, consider the availability and proximity of the required power supply circuit. If an existing circuit does not meet the requirements for this machine, a new circuit must be installed. To minimize the risk of electrocution, fire, or equipment damage, installation work and electrical wiring must be done by an electrican or qualified service personnel in accordance with all applicable codes and standards.

⚠WARNING

Electrocution, fire, or equipment damage may occur if machine is not correctly grounded and connected to the power supply.

Full-Load Current Rating

The full-load current rating is the amperage a machine draws at 100% of the rated output power. On machines with multiple motors, this is the amperage drawn by the largest motor or sum of all motors and electrical devices that might operate at one time during normal operations.

Full-Load Current Rating at 220V ..... 12 Amps

The full-load current is not the maximum amount of amps that the machine will draw. If the machine is overloaded, it will draw additional amps beyond the full-load rating.

If the machine is overloaded for a sufficient length of time, damage, overheating, or fire may result—especially if connected to an undersized circuit. To reduce the risk of these hazards, avoid overloading the machine during operation and make sure it is connected to a power supply circuit that meets the requirements in the following section.

Circuit Requirements for 220V

This machine is prewired to operate on a 220V power supply circuit that has a verified ground and meets the following requirements:

Nominal Voltage 220V/240V
Cycle ..... 60 Hz
Phase 1-Phase
Power Supply Circuit ..... 15 Amps
Plug/Receptacle ..... NEMA 6-15
Cord ..... "S"-Type, 3-Wire, 14 AWG, 300 VAC

A power supply circuit includes all electrical equipment between the breaker box or fuse panel in the building and the machine. The power supply circuit used for this machine must be sized to safely handle the full-load current drawn from the machine for an extended period of time. (If this machine is connected to a circuit protected by fuses, use a time delay fuse marked D.)

⚠CAUTION

For your own safety and protection of property, consult an electrician if you are unsure about wiring practices or electrical codes in your area.

Note: *The circuit requirements listed in this manual apply to a dedicated circuit—where only one machine will be running at a time. If this machine will be connected to a shared circuit where multiple machines will be running at the same time, consult a qualified electrician to ensure that the circuit is properly sized for safe operation.*

Grounding Instructions

This machine MUST be grounded. In the event of certain malfunctions or breakdowns, grounding reduces the risk of electric shock by providing a path of least resistance for electric current.

The power cord and plug specified under "Circuit Requirements for 220V" on the previous page has an equipment-grounding wire and a grounding prong. The plug must only be inserted into a matching receptacle (outlet) that is properly installed and grounded in accordance with all local codes and ordinances (see figure below).

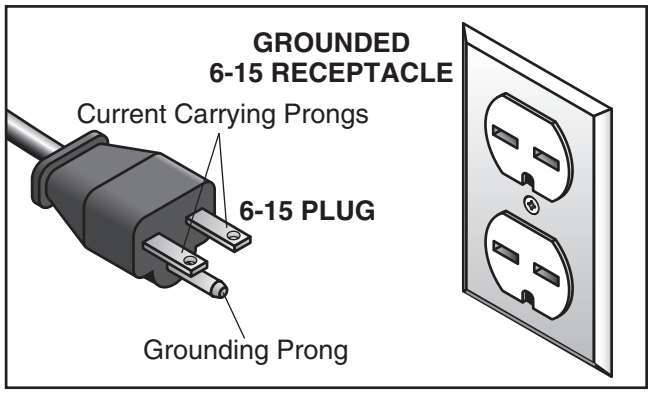
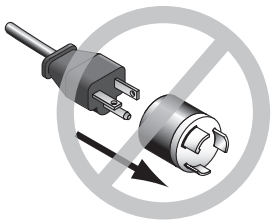


Figure 1. Typical 6-15 plug and receptacle.

⚠WARNING

Serious injury could occur if you connect the machine to power before completing the setup process. DO NOT connect to power until instructed later in this manual.

⚠CAUTION



No adapter should be used with the required plug. If the plug does not fit the available receptacle, or the machine must be reconnected for use on a different type of circuit, the reconnection must be made by a qualified electrician and comply with all local codes and ordinances.

⚠WARNING

Serious injury could occur if you connect the machine to power before completing the setup process. DO NOT connect to power until instructed later in this manual.

Improper connection of the equipment-grounding wire can result in a risk of electric shock. The wire with green insulation (with or without yellow stripes) is the equipment-grounding wire. If repair or replacement of the power cord or plug is necessary, do not connect the equipment-grounding wire to a live (current carrying) terminal.

Check with a qualified electrician or service personnel if you do not understand these grounding requirements, or if you are in doubt about whether the tool is properly grounded. If you ever notice that a cord or plug is damaged or worn, disconnect it from power, and immediately replace it with a new one.

Extension Cords

We do not recommend using an extension cord with this machine. If you must use an extension cord, only use it if absolutely necessary and only on a temporary basis.

Extension cords cause voltage drop, which may damage electrical components and shorten motor life. Voltage drop increases as the extension cord size gets longer and the gauge size gets smaller (higher gauge numbers indicate smaller sizes).

Any extension cord used with this machine must contain a ground wire, match the required plug and receptacle, and meet the following requirements:

Minimum Gauge Size .....14 AWG
Maximum Length (Shorter is Better).....50 ft.

Power Connection

Before the machine can be connected to the power source, an electrical circuit, power cord, plug, and receptacle must be prepared according to the specifications and instructions in **POWER SUPPLY** on **Page 13**.

⚠WARNING

Before connecting the machine to power, always make sure the reset button on the control panel is pushed in to avoid unexpected start-ups.

Connecting Power Cord

1. Make sure the power cord is NOT connected to power.

2. Open the electrical cabinet and identify the **L** and **N** terminals, and the grounding plate (**PE**) at the bottom left of the cabinet (see **Figure 2**).

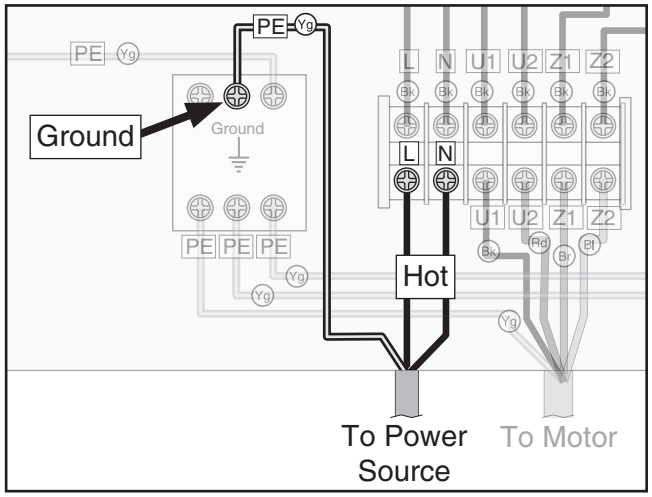


Figure 2. Incoming power cord connections.

3. Attach insulated crimp-on wire terminals to the wires of the power cord.

4. Securely connect the incoming ground to the **PE** terminal and the two incoming hot leads to the **L** and **N** terminals.

5. Close and secure the electrical cabinet.

Connecting Power

1. Turn the machine power switch **OFF**.

2. Insert the power cord plug into a matching power supply receptacle. The machine is now connected to the power source.

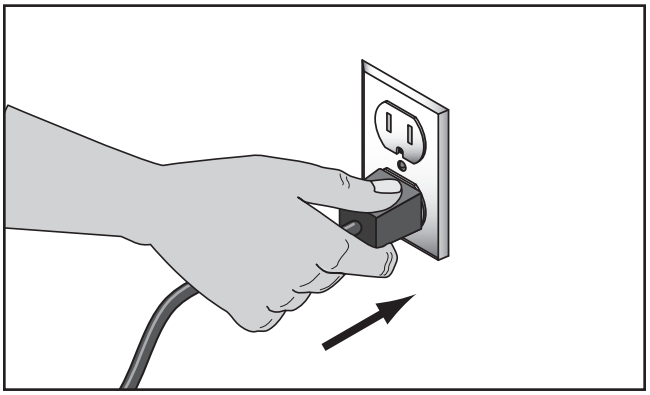


Figure 3. Connecting power.

Disconnecting Power

1. Turn the machine power switch **OFF**.

2. Grasp the molded plug and pull it completely out of the receptacle. Do not pull by the cord as this may damage the wires inside.

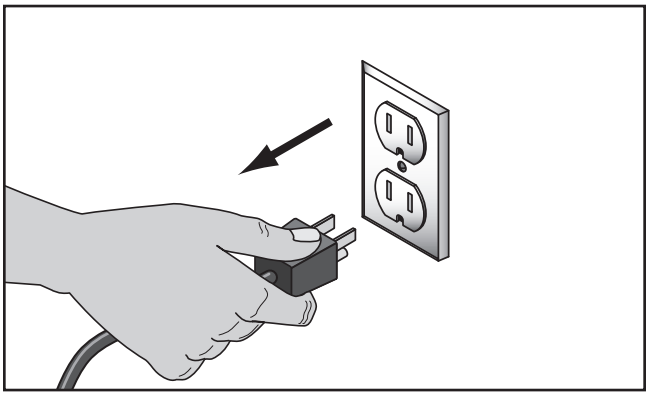


Figure 4. Disconnecting power.

Unpacking

Your machine was carefully packaged for safe transportation. Remove the packaging materials from around your machine and inspect it. If you discover any damage, *please call us immediately at (570) 546-9663 for advice.*

Save the containers and all packing materials for possible inspection by the carrier or its agent. *Otherwise, filing a freight claim can be difficult.*

When you are completely satisfied with the condition of your shipment, inventory the contents.

⚠WARNING

HEAVY LIFT!

Straining or crushing injury may occur from improperly lifting machine or some of its parts. To reduce this risk, get help from other people and use a forklift (or other lifting equipment) rated for weight of this machine.

Needed for Setup

The following are needed to complete the setup process, but are not included with your machine.

Description	Qty
• Additional People	1
• Safety Glasses	1 For Each Person
• Cleaner/Degreaser (**Page 17**)	As Needed
• Quality Metal Protectant	As Needed
• Disposable Shop Rags	As Needed
• Precision Level	1
• Lifting Straps (rated for at least 1300 lbs.)	2
• Forklift/Power Lifting Device (rated for at least 1300 lbs.)	1
• Bench or Stand Mounting Hardware	As Needed

Inventory

The following is a list of items shipped with your machine. Before beginning setup, lay these items out and inventory them.

If any non-proprietary parts are missing (e.g. a nut or a washer), we will gladly replace them; or for the sake of expediency, replacements can be obtained at your local hardware store.

Description	Qty
• Lathe	1
• 6" 3-Jaw Chuck with 2 Sets of Jaws	1
• 8" 4-Jaw Chuck with Reversible Jaws	1
• 10" Faceplate	1
• Steady Rest	1
• Follow Rest	1
• Quick Change Tool Post with Holder	1
• 4-Piece Insert Tool Holder Set	1
• Change Gear Set	7
–26T, 27T, 35T, 36T, 45T, 50T, 60T	
• Open-End Wrench Set	4
–9/11, 10/12, 12/14, 17/19mm	
• Hex Wrench Set	6
–2.5, 3, 4, 5, 6, 8, 10mm	
• Flat Screwdriver #2	1
• Phillips Screwdriver #2	1
• Lathe Chuck Key	1
• Dead Center MT#3 HSS Tip	1
• Dead Center MT#3 Carbide Tip	1
• Live Center MT#3	1
• ½" Drill Chuck with MT#3 Arbor	1
• Spindle Sleeve MT#5/MT#3	1
• Oil Can	1
• Toolbox	1
• Hardware Bag	1
–Hex Bolt M12-1.75 x 40	6
–Flat Washer 12mm	6
–Cap Screw M6-1 x 8	8
–Flat Washer 6mm	8
–Hex Nut M6-1	8

⚠WARNING

SUFFOCATION HAZARD!

Keep children and pets away from plastic bags or packing materials shipped with this machine. Discard immediately.

Cleanup

The unpainted surfaces of your machine are coated with a heavy-duty rust preventative that prevents corrosion during shipment and storage. This rust preventative works extremely well, but it will take a little time to clean.

Be patient and do a thorough job cleaning your machine. The time you spend doing this now will give you a better appreciation for the proper care of your machine's unpainted surfaces.

There are many ways to remove this rust preventative, but the following steps work well in a wide variety of situations. Always follow the manufacturer's instructions with any cleaning product you use and make sure you work in a well-ventilated area to minimize exposure to toxic fumes.

Before cleaning, gather the following:
- Disposable Rags
- Cleaner/degreaser (WD•40 works well)
- Safety glasses & disposable gloves
- Plastic paint scraper (optional)

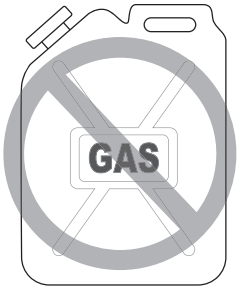
Basic steps for removing rust preventative:

1. Put on safety glasses.

2. Coat the rust preventative with a liberal amount of cleaner/degreaser, then let it soak for 5–10 minutes.

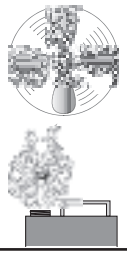
3. Wipe off the surfaces. If your cleaner/degreaser is effective, the rust preventative will wipe off easily. If you have a plastic paint scraper, scrape off as much as you can first, then wipe off the rest with the rag.

4. Repeat **Steps 2–3** as necessary until clean, then coat all unpainted surfaces with a quality metal protectant to prevent rust.



⚠WARNING

Gasoline or products with low flash points can explode or cause fire if used to clean machinery. Avoid cleaning with these products.



⚠CAUTION

Many cleaning solvents are toxic if concentrated amounts are inhaled. Only work in a well-ventilated area.

NOTICE

Avoid chlorine-based solvents, such as acetone or brake parts cleaner, that may damage painted surfaces. Test all cleaners in an inconspicuous area before using to make sure they will not damage paint.

T23692—Orange Power Degreaser
A great product for removing the waxy shipping grease from your machine during clean up.

Figure 5. T23692 Orange Power Degreaser.

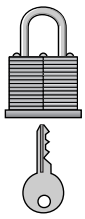
Site Considerations

Weight Load

Refer to the **Machine Data Sheet** for the weight of your machine. Make sure that the surface upon which the machine is placed will bear the weight of the machine, additional equipment that may be installed on the machine, and the heaviest workpiece that will be used. Additionally, consider the weight of the operator and any dynamic loading that may occur when operating the machine.

Space Allocation

Consider the largest size of workpiece that will be processed through this machine and provide enough space around the machine for adequate operator material handling or the installation of auxiliary equipment. With permanent installations, leave enough space around the machine to open or remove doors/covers as required by the maintenance and service described in this manual. **See below for required space allocation.**



⚠CAUTION

Children or untrained people may be seriously injured by this machine. Only install in an access restricted location.

Physical Environment

The physical environment where the machine is operated is important for safe operation and longevity of machine components. For best results, operate this machine in a dry environment that is free from excessive moisture, hazardous chemicals, airborne abrasives, or extreme conditions. Extreme conditions for this type of machinery are generally those where the ambient temperature range exceeds 41°–104°F; the relative humidity range exceeds 20–95% (non-condensing); or the environment is subject to vibration, shocks, or bumps.

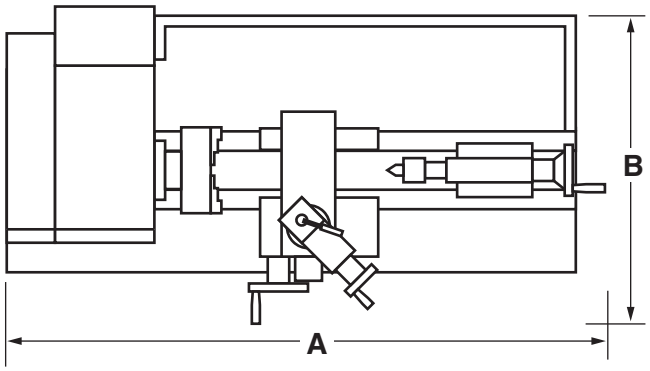
Electrical Installation

Place this machine near an existing power source. Make sure all power cords are protected from traffic, material handling, moisture, chemicals, or other hazards. Make sure to leave access to a means of disconnecting the power source or engaging a lockout/tagout device, if required.

Lighting

Lighting around the machine must be adequate enough that operations can be performed safely. Shadows, glare, or strobe effects that may distract or impede the operator must be eliminated.

Illustration Not To Scale



	G4002	G4003
A	53"	61"
B	26"	23"

Figure 6. Minimum working clearances.

SECTION 3: ASSEMBLY & SETUP

Mounting

This lathe should be securely mounted to a stand or bench top. An accessory stand is available from Grizzly. Please see our current catalog for pricing. There are 2 holes in the base at the tailstock end of the lathe and four holes on the gearhead end which can be used to secure the machine to a stand.

The lathe does not require a great deal of assembly. This section details the installation of the various accessory holding devices. The following section will familiarize you with the controls for your new lathe. After you have completed both of these sections we will do a test run of the machine. Do not attempt a test run until you have become familiar with both of these sections.

Lubricating Lathe

The Model G4002/G4003 lathe is shipped without oil. You must fill the headstock and apron with oil, and complete the **Lubrication** procedures outlined in the **MAINTENANCE** section beginning on **Page 36**. If you run this lathe without oil, even for a short period of time, drivetrain parts will be damaged and your lathe warranty will be void. Make sure to change the oil immediately after spindle break-in.

Chucks

The Model G4002/3 Metal Lathe comes equipped with a 6" 3-jaw chuck (already installed), a 8" 4-jaw chuck and a face plate.

The 3-jaw chuck is a scroll-type chuck, meaning that all three jaws move in unison when adjustments are made. The 4-jaw chuck, on the other hand, features independent jaws. The 4-jaw chuck is used for square or unevenly-shaped stock.

The 3 and 4-jaw chucks have a D-1 Camlock mount. Please note that there are lines stamped into the cam and on the chuck body. A chuck key is used to turn the locking cams as in **Figure 7**.

Figure 7. Key positioned to remove chuck.

⚠CAUTION

Always place a piece of plywood over the ways of the lathe before removing or installing a chuck. This helps by covering the sharp corners of the bed, protecting your hands and fingers. Use extreme care when removing or installing a chuck so that your hands do not become trapped between the chuck and the plywood.

To remove a chuck:

1. Place a piece of plywood across the lathe bed and position it just under the chuck. The board should be at least 8" wide and 10" long.

⚠WARNING

Never leave a chuck key in the chuck when it is not in use. If the machine is accidentally started with this in place, it can become a projectile and cause serious injury.

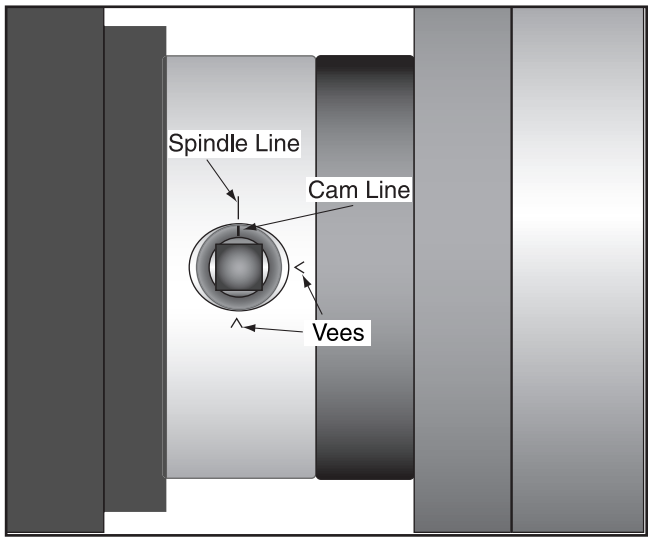


Figure 8. Cam lines aligned to spindle line.

2. Turn a cam, with the chuck key, in the lathe spindle in a counter-clockwise rotation until the line on the cam is aligned with the line going *across* the spindle housing as in **Figure 8.**

⚠WARNING

The chuck is heavy and can be awkward to handle. Be aware that when removing or installing a chuck a finger pinch situation exists.

3. Turn the other cams in the same way. Make sure to support the chuck with one hand as you align the last cam. The chuck may come off at this point so it is important you are ready to support its weight.

4. Remove the chuck key.

If the chuck is still tight on the spindle:

Tap the back of the chuck with a rubber or wooden mallet while supporting the bottom of the chuck with your free hand. If the chuck does not immediately come off, rotate the spindle approximately 60˚ and tap again. Make sure all the marks on the cams and spindle are in proper alignment.

To install a chuck:

1. Place a piece of plywood across the lathe bed and position it just under the spindle.

2. Lift the chuck up to the spindle and align the pins in the back with the holes on the spindle's face and insert the pins.

3. While supporting the weight of the chuck, turn one cam with the chuck key until the cam line is between the two vees on the spindle. Do not tighten at this time.

4. Rotate the spindle and repeat step 3 on the last two cams.

5. Return to the first cam and snug it up. Repeat with the rest of the cams.

6. Finally, tighten all three cams.

Live Center

The live center is used to support stock which is too long to be supported by the chuck alone. Stock protruding more than three times its diameter should be supported by the live center.

The tailstock barrel and live center have a Morse taper #3. Before assembling these, insure that the mating surfaces are “white glove” clean. These parts will last longer and remain accurate when properly maintained. Morse tapers will not interlock when oil is present on the mounting surfaces. Insert the end of the live center into the tailstock bore until it seats. The force of a mounted workpiece will fully seat the taper.

When using a live center, the tailstock barrel should protrude about 1⁄2'' and not more than 3''. See **Figure 9**.

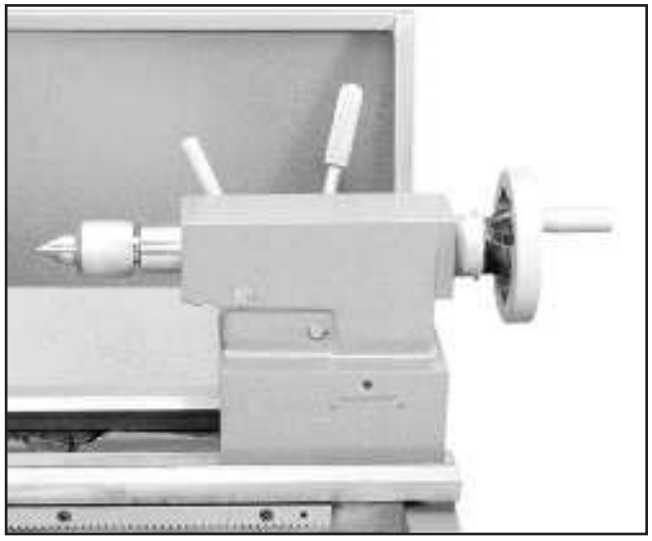


Figure 9. Live center installed in tailstock.

To remove the live center, back the tailstock barrel all the way into the tailstock casting. The live center will pop out. Be sure to catch it when it comes out to avoid damaging the tip.

Steady Rest

The steady rest supports long, small diameter stock that otherwise could not be turned. The steady rest can also replace the tailstock to allow for cutting tool access at the outboard end of your workpiece.

To mount the steady rest:

1. Secure to bedway from below with the locking plate.

2. A single hex bolt, along with a nut and washer, is used to hold the steady rest in place. See **Figure 10**.

3. The bearing surfaces on the steady rest should receive periodic lubrication while in use to prevent premature wear.

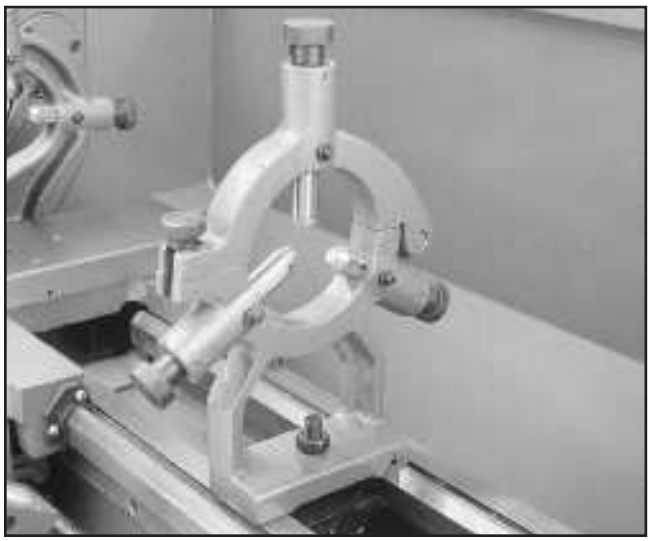


Figure 10. Steady rest in place.

Follow Rest

The follow rest is normally used with small diameter stock to prevent the workpiece from “springing” under pressure from the turning tool. To install the follow rest:

1. The follow rest is secured to the saddle with two cap screws. See **Figure 11**.

2. The bearing surfaces on the follow rest are similar to those on the steady rest, and should be lubricated to prevent premature wear.

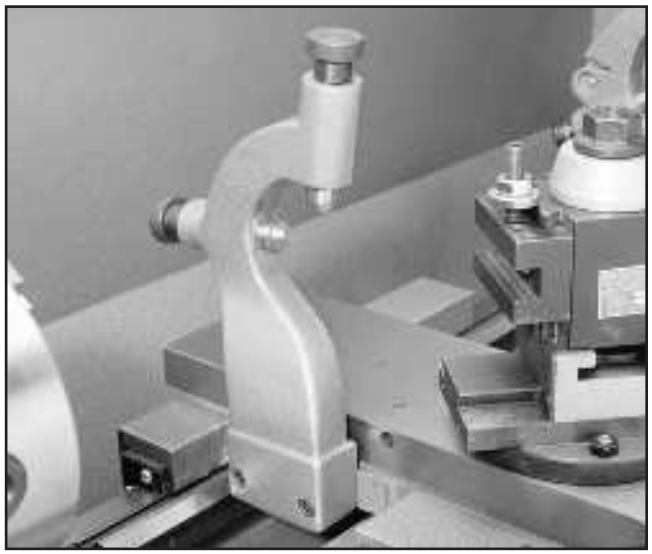


Figure 11. Follow rest secured to saddle.

4-Jaw Chuck

The 4-jaw chuck supplied with the G4002/3 is not mounted to the back plate. Assembly of the back plate components is also required.

1. Make note of the reference lines on each of the 3-jaw chuck studs. Thread each of the 4-jaw chuck cam lock studs into the 4-jaw chuck back plate to the exact same depth as the 3-jaw studs. Screw in the locking cap screws.

2. Mount the back plate on the spindle.

3. Accurately measure the inside of the back relief bore on the 4-jaw chuck. This dimension is critical, ± .001".

4. Face the back plate to true it. Make passes across the face until its entire surface has been cut.

5. Turn a shoulder into the face ⅛" deep and .001" to .002" larger than the back relief bore diameter. Chamfer the corner a small amount.

6. Set the chuck on the back plate aligning the shoulder with the relief bore. Use a transfer punch to mark the back plate. If a transfer punch is not available, a drill bit of the same size as the mounting holes in the chuck can be used. Lightly tap on the bit, rotate it 90° and tap it again.

7. Remove the chuck from the back plate and center punch the marks. Drill and tap the holes for ⅜"-16.

8. Set the chuck on the back plate. Line up the mounting holes and thread in the cap screws supplied. Remember that this is a .001" to .002" press fit. Snug up the first cap screw then alternate to the cap screw across the chuck. Alternating the tightening process insures the chuck will go on straight. This step should be repeated until the back plate fits snugly against the chuck. If the chuck fits loosely on the back plate, or is crooked on the shoulder, it will be necessary to face and shoulder the back plate again.

SECTION 4: CONTROLS

Spindle Speeds

Never change speeds while spindle or motor is in motion.

The speed of the spindle is controlled by the positions of the speed control knobs. See **Figure 12**. By positioning the knobs using the chart in Figure 8, you can achieve all of these speed ranges: 70, 200, 220, 270, 360, 600, 800, 1000 and 1400 RPM.

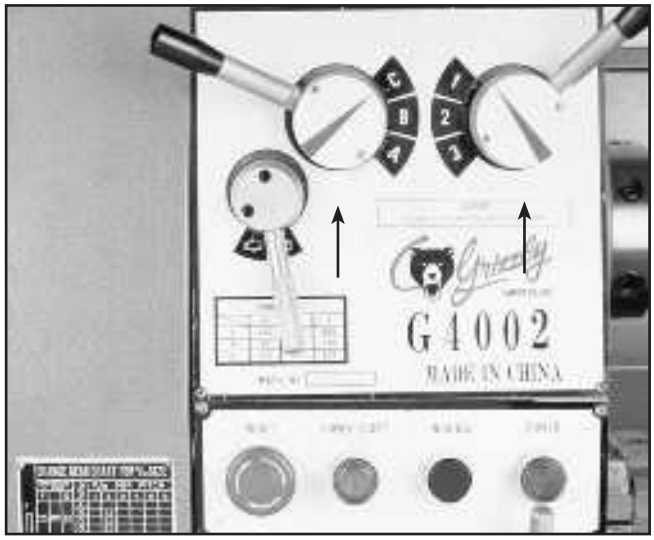


Figure 12. Speed shifting levers.

Spindle Speed

	1	2	3
A	270	1400	800
B	70	360	220
C	200	1000	600

Figure 13. Speed chart.

The chart above shows the various combinations of knob positions for achieving a desired speed.

Example:

To select a spindle speed of 600 RPM, move the left-hand selector knob until the indicator arrow on its hub is pointing to the “C”. Move the right-hand selector knob until its indicator arrow is pointed at the “3”.

Feed Direction

Never move selection levers while machine is running.

The G4002/3 Metal Lathe can cut left or right while feeding or threading and across both ways for facing operations. This feed direction is controlled by the selection knob as shown in **Figure 14**.

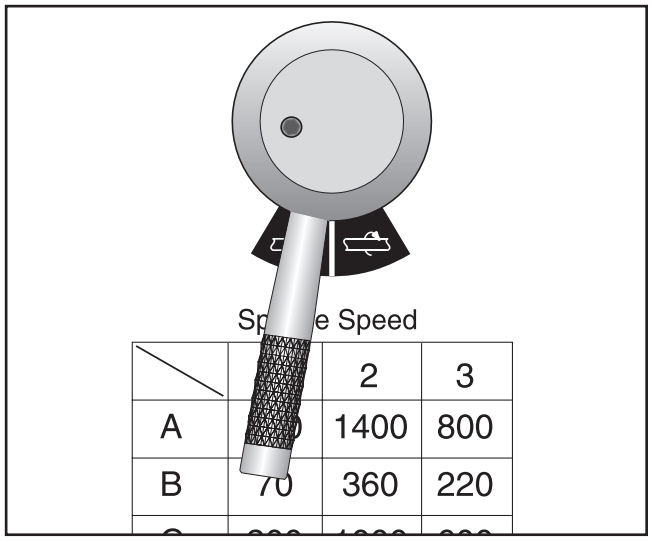


Figure 14. Directional control lever.

When the selection knob is positioned as depicted in **Figure 14**, the apron will move to the right along the bed or the cross feed will travel away from the operator. The cross feed and longitudinal feed selection is controlled on the apron and will be discussed later.

To reverse the direction of the feeding or threading operation, rotate the selection knob to the right. It should be noted that when the lever is positioned in the middle, no direction is selected and all of the drive mechanisms after this point are in neutral.

Important:

Do not force any selection lever on the machine. If the lever will not engage, rotate the chuck by hand while keeping light pressure on the selector. As the chuck rotates it aligns the gears and the selector will engage.

Selecting the Feed Rod

The feed rod can be selected by rotating the handle to the left as in **Figure 15**. Use this position for all feeding operations. When the lever is positioned straight up, no drive device is selected and the gear train is in neutral after this point.

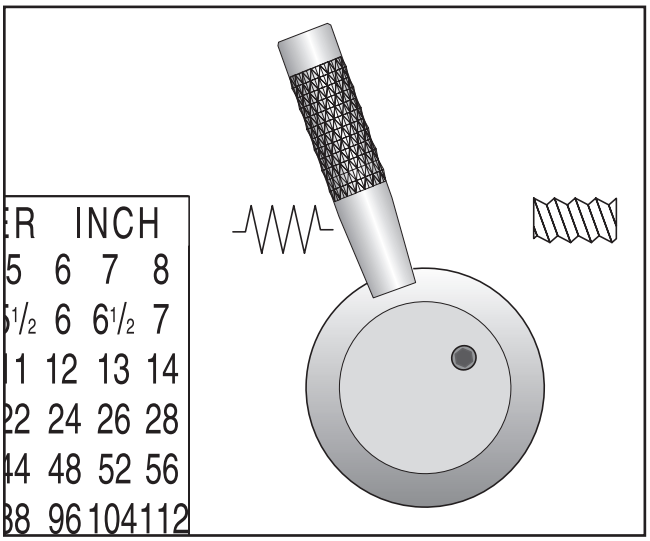


Figure 15. Feed rod selected.

Quick Change Selection

The two levers at the bottom of the headstock change the feed rate, or the number of threads-per-inch. This section of the machine is commonly known as the Quick Change Gear Box. See **Figure 16**. The left-hand lever can be engaged in any of five different positions and are listed on the charts as A, B, C, D, and E. The right-hand lever has 8 positions and are listed on the charts as 1 through 8.

The machine label describes some of the more typical settings which might be used. **Figure 17** shows the feed rate chart located on the gear cover of the lathe. The chart is divided into metric feed rates and inch feed rates.

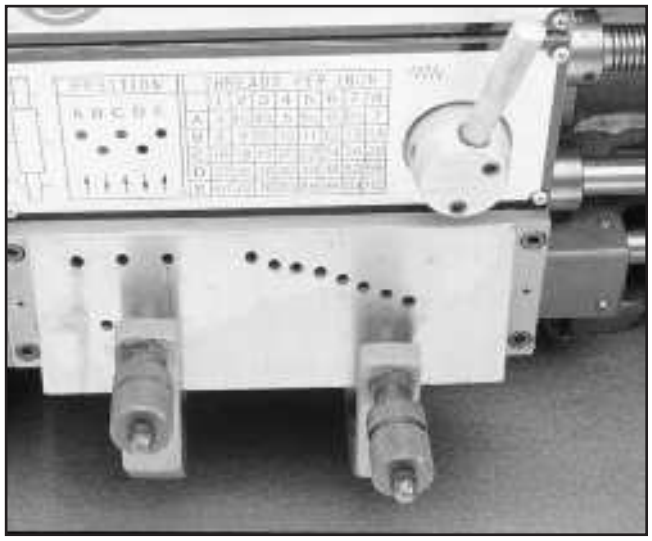


Figure 16. Feed rate selector levers.

Important:
Do not force any selection lever on the machine. If the lever will not engage, rotate the chuck by hand while keeping light pressure on the selector. As the chuck rotates, it aligns the gears and the selector will engage.

To change the position of the feed selector, pull the knurled handle. This disengages a pin which is inserted into a selection hole. Position the lever in the down position and slide to the right or left until it is positioned below the desired selection hole. Raise the lever with one hand while pulling the handle with the other. The pin at the end of the lever should align with the selection hole. If it does not, rotate the feed rod or chuck by hand while maintaining gentle pressure on the lever.

Feed Rate Chart

To perform a longitudinal cut in inches, use the bottom portion of the chart. If the desired feed rate is 0.0062"/revolution, look at the longitudinal ranges. According to the chart we would put the left-hand lever in the “C” position and the right-hand lever in the “4” position. Metric calculations would be done the same way. To perform a cross feed cut with a feed rate of 0.0013" move the left-hand lever to the “D” position and the right-hand lever to the “1” position.

Please note that when either of the two selector levers are left in the down position, the drive train after this point is in neutral.

40T
86T
40T

Position		1	2	3	4	5	6	7	8
		mm C.T.							
A	~	0.791	0.703	0.666	0.632	0.575	0.527	0.486	0.452
	⋕	0.268	0.238	0.226	0.214	0.196	0.178	0.166	0.154
B	~	0.395	0.351	0.333	0.316	0.287	0.264	0.243	0.226
	⋕	0.134	0.119	0.113	0.107	0.098	0.089	0.083	0.077
C	~	0.198	0.175	0.167	0.158	0.144	0.132	0.122	0.113
	⋕	0.067	0.060	0.057	0.054	0.049	0.045	0.042	0.038
D	~	0.099	0.088	0.083	0.079	0.072	0.066	0.061	0.057
	⋕	0.033	0.030	0.028	0.027	0.025	0.022	0.021	0.019
E	~	0.050	0.044	0.042	0.040	0.036	0.033	0.031	0.028
	⋕	0.017	0.015	0.014	0.014	0.012	0.011	0.011	0.010
		inch							
Position		1	2	3	4	5	6	7	8
A	~	0.0311	0.0277	0.0262	0.0249	0.0226	0.0207	0.0191	0.0178
	⋕	0.0105	0.0094	0.0089	0.0084	0.0077	0.0070	0.0065	0.0061
B	~	0.0156	0.0138	0.0131	0.0124	0.0113	0.0104	0.0096	0.0089
	⋕	0.0053	0.0047	0.0044	0.0042	0.0039	0.0035	0.0032	0.0030
C	~	0.0078	0.0069	0.0066	0.0062	0.0057	0.0052	0.0048	0.0044
	⋕	0.0026	0.0024	0.0022	0.0021	0.0019	0.0018	0.0017	0.0015
D	~	0.0039	0.0035	0.0033	0.0031	0.0028	0.0026	0.0024	0.0022
	⋕	0.0013	0.0012	0.0011	0.0011	0.0010	0.0009	0.0008	0.0007
E	~	0.0020	0.0017	0.0017	0.0016	0.0014	0.0013	0.0012	0.0011
	⋕	0.0007	0.0006	0.0006	0.0006	0.0005	0.0004	0.0004	0.0004

Figure 17. Feed rate selection.

~ This symbol indicates longitudinal feed.
⋕ This symbol indicates cross feed rates.

Feed Lever - Longitudinal and cross slide powered motions are controlled by the feed lever. The lever pivots through two stops which require moving the lever left and right as well as up and down. Moving this lever upward activates the automatic longitudinal feed. Moving the lever down activates the cross slide. See **Figure 18**.

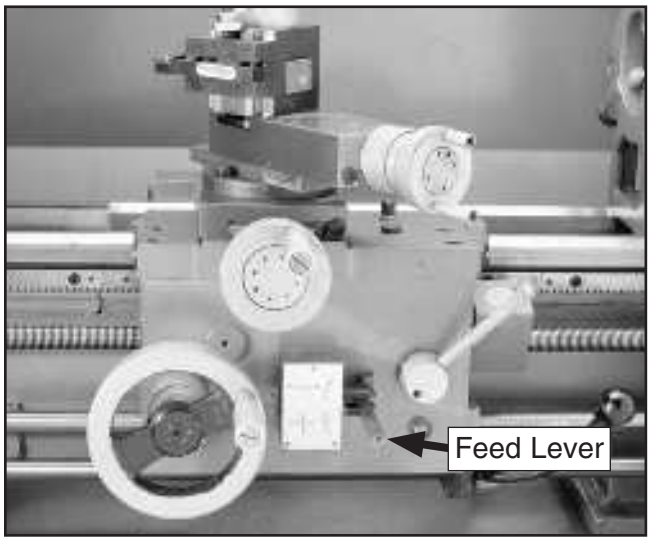


Figure 18. Feed lever in neutral position.

Thread Selection

Inch thread selection:

To cut threads with inch pitches, a selection must be made for feed direction, pitch and lead screw.

Select the desired direction of cut as described in the section titled **Feed Direction**.

Rotate the Feed/Lead Screw selection lever to the position shown in **Figure 19**. If the lever does not readily engage, rotate the lead screw or the chuck by hand while maintaining gentle pressure on the lever.

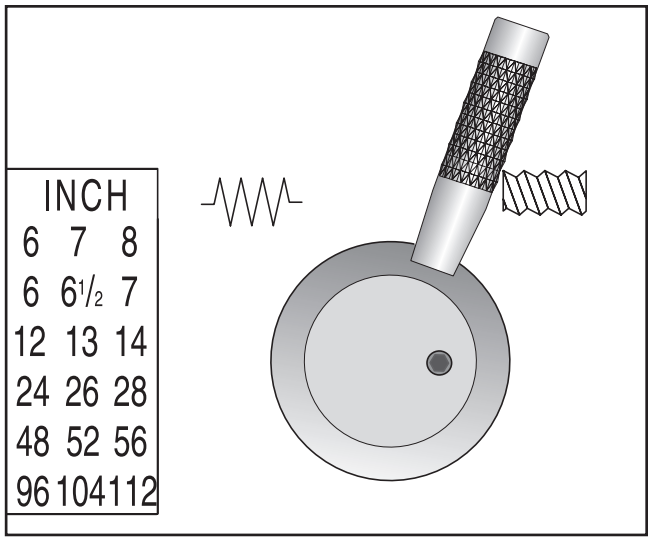


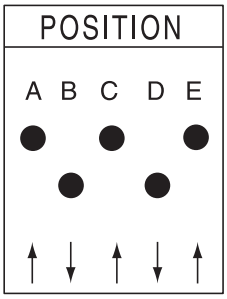
Figure 19. Selector positioned for threads.

While other thread pitches may be achieved, the G4002/3 comes with a chart that requires no gear changes for cutting inch threads.

To achieve a desired thread pitch in inches, it is necessary to determine the quick-change lever positions. Refer to **Figure 20** and find the desired thread.

Example:

The thread to be cut has 20 threads per inch (TPI). Looking at the chart we find that the left hand lever would be positioned at “C”. The right hand lever would be positioned at “4”.



THREAD PER INCH								
	1	2	3	4	5	6	7	8
A	4	4½	4¾	5	5½	6	6½	7
B	8	9	9½	10	11	12	13	14
C	16	18	19	20	22	24	26	28
D	32	36	38	40	44	48	52	56
E	64	72	76	80	88	96	104	112

Figure 20. Thread pitch chart.

NOTICE

The threading dial cannot be used when cutting metric threads. Once the half nut has been engaged, it must remain engaged throughout the threading process.

Half Nut Lever - This lever compresses and releases the half nut that engages the leadscrew. See **Figure 21**. The lever is only engaged while turning threads in stock. A lockout device featured in the lever mechanism engages when the feed selector is used.

NOTICE

Do not simultaneously engage the feed lever and the threading lever. Doing so will damage the lathe.

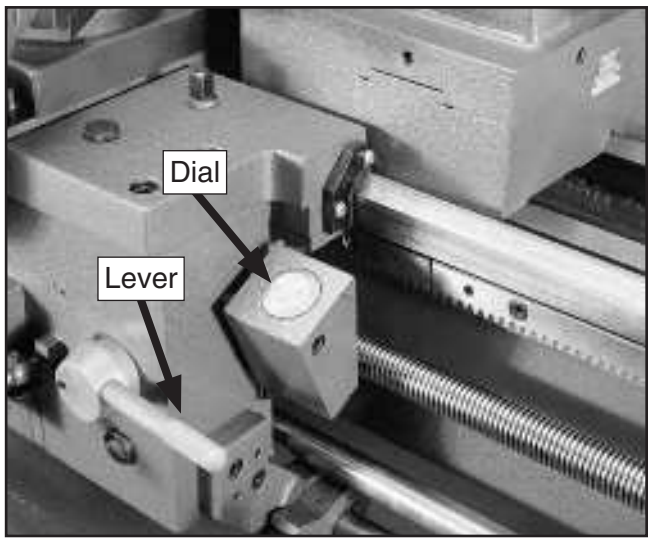


Figure 21. Threading dial and half nut lever.

Threading Dial Indicator - The indicator tells you when to engage the half nut to begin the threading process. See **Figure 21**.

The Threading Dial Indicator has 8 lines and four numbers printed on the dial. An indicator mark is positioned near the rim of the dial. The dial is mounted on a shaft that has a worm gear mounted at its opposite end. These rest in a housing that pivots so that the gear can be engaged or disengaged. An Allen® head cap screw is located on the side of the housing. Loosen this screw to change the positioning of this housing.

When engaged, the dial will turn when the spindle is turning. If the dial does not turn, readjust the housing.

When the half nut is engaged the dial stops turning. By carefully engaging the half nut as the appropriate line or number passes by the indicator mark, a thread can be established and the lead maintained through the multiple passes that are required to cut a thread to the finished depth.

The chart listed in **Figure 22** shows a system for using the threading dial indicator while cutting inch threads.

Example:

To cut 11 threads per inch engage the half nut when the 1 or the 3 is on the indicator mark. Determine the length of the thread to be cut. Make a cut along the part and disengage the half nut. Return the carriage to the beginning of the cut. Watch the dial and when the 1 or the 3 comes around to the indicator mark engage the half nut. Repeat this process until the desired depth of cut has been achieved.

4	N	8	ANY	16	ANY	32	ANY	64	ANY
4½	1	9	1-3	18	N	36	ALL	72	ANY
4¾	1	9½	1	19	1	38	N	76	ALL
5	1	10	N	20	ALL	40	ANY	80	ANY
5½	1	11	1-3	22	N	44	ALL	88	ANY
6	1-3	12	ALL	24	ANY	48	ANY	96	ANY
6½	1	13	1-3	26	N	52	ALL	104	ANY
7	1	14	N	28	ALL	56	ANY	112	ANY

ANY = Engage at any time
ALL = Engage on all lines
N = Engage on any Number
1-3 = Engage on 1 or 3
1 = Engage only on 1

Figure 22. Dial indicator chart.

Metric thread selection:

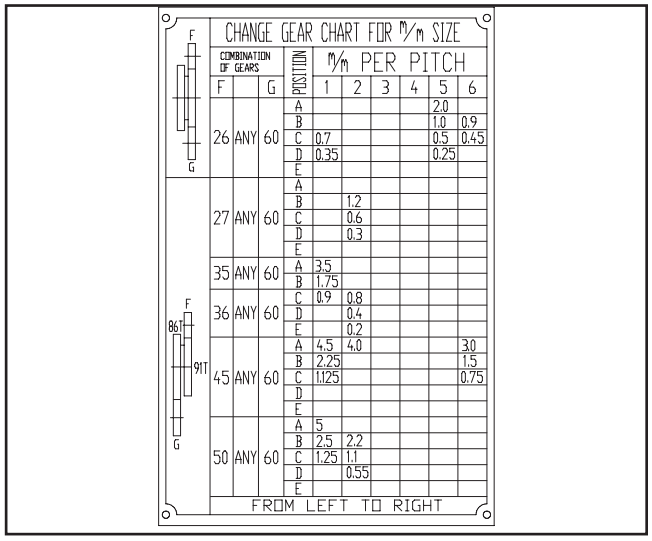
The chart in **Figure 23** lists 30 metric threads that can be cut on the G4002/3. Five ranges are used on the left hand quick change selector and 6 on the right hand quick change selector. Additionally, 5 gear changes are necessary to accomplish all of the available metric threads. These gear changes take place on the left hand end of the machine. See **Figure 24**.

The chart is divided into 3 main sections or columns. Starting from the left: Gear diagram, Combination of Gears and m/m Per Pitch.

To use the chart:

1. Find the desired pitch in the chart.

2. Below the m/m Per Pitch label are numbers. Find the corresponding number above the desired pitch and change the right hand quick change lever to that position.



CHANGE GEAR CHART FOR m/m SIZE

COMBINATION OF GEARS F		G	POSITION	m/m PER PITCH 1	2	3	4	5	6
26	ANY	60	A					2.0	
			B					1.0	0.9
			C	0.7				0.5	0.45
			D	0.35				0.25	
			E						
27	ANY	60	A						
			B		1.2				
			C		0.6				
			D		0.3				
			E						
35	ANY	60	A	3.5					
			B	1.75					
36	ANY	60	C	0.9	0.8				
			D		0.4				
			E		0.2				
45	ANY	60	A	4.5	4.0				3.0
			B	2.25					1.5
			C	1.125					0.75
			D						
			E						
50	ANY	60	A	5					
			B	2.5	2.2				
			C	1.25	1.1				
			D		0.55				
			E						

FROM LEFT TO RIGHT

Figure 23. Metric thread chart.

3. To the left of the desired pitch is a small column with a letter. This letter indicates placement of the left hand quick change lever. Move the lever to the corresponding location.

4. In the “Combination of Gears” column are 3 small columns. Please note the “F” and “G” at the top. The numbers below F and G represent the number of gear teeth of a gear included with the lathe. Find the gears that have the corresponding number of teeth as stated in the chart to the left of the desired pitch.

Example:

The desired metric pitch is 1.25mm. Find this number in the chart and find the number of teeth of the two gears to the left. The F gear will need to have 50 teeth and the G gear will need 60 teeth. A diagram on the left side of the chart on the machine tells us the 50-tooth gear goes on top of the middle gear and the 60-tooth gear goes on the bottom.

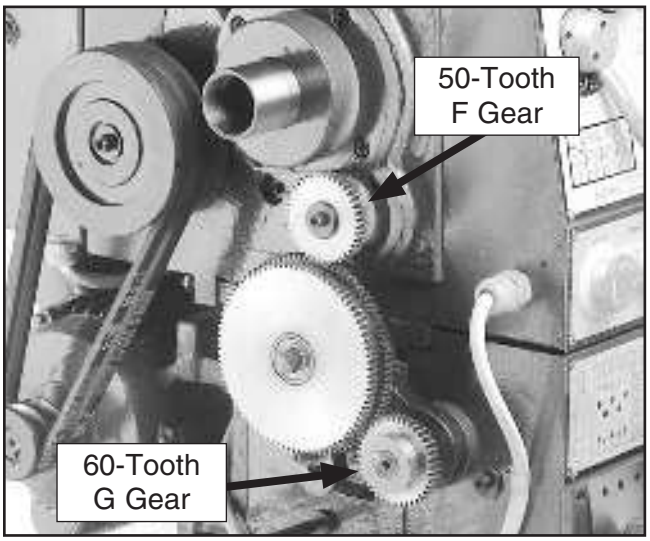


Figure 24. Change gears for 1.25mm pitch.

Metric threading requires 5 gear changes to achieve all of the available pitches listed on the chart. Refer to **Figure 25** while reading the instructions below.

To change gears:

1. Loosen the nut below the middle gear and rotate the bracket so the middle gear moves away from gear F.

2. Loosen the cap screw at the center of the middle gear and slide it away from gear G.

3. Gear F can be removed by loosening the cap screw in its middle. Gear G has a setscrew in its rim. Loosen this screw and pull the gear off of the shaft.

4. Replace these two gears with the gears which will produce the desired pitch and secure with screws provided.

5. Slide the middle gear until it is in mesh with the G Gear. Tighten the cap screw at the center.

6. Pivot the bracket until the middle gear is in mesh with gear F and tighten the nut below.

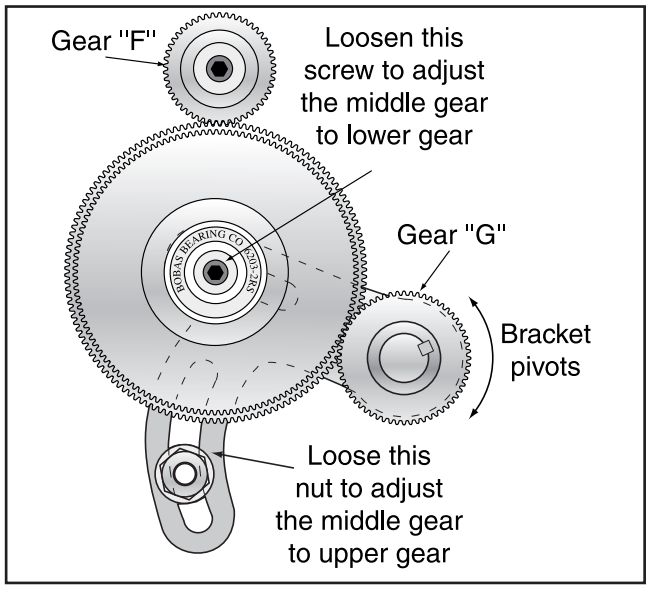

Gear "F"
Loosen this screw to adjust the middle gear to lower gear
Gear "G"
Bracket pivots
Loose this nut to adjust the middle gear to upper gear

Figure 25. Gear placement.

Carriage Controls

The carriage handwheel allows the cutting tool to move along the length of the lathe bed. The cross slide allows the cutting tool to travel perpendicular to the bed. The carriage features a top slide which allows linear movement of the cutting tool at any preset angle. This section will review the individual controls on the carriage and provide descriptions of their uses. See **Figure 26**.

Compound Slide Handwheel - The Top Slide Handwheel controls the position of the cutting tool relative to the workpiece. The top slide is adjustable for any angle. The graduated dial is adjustable using the same method as the dial on the cross slide. Angle adjustment is controlled by hex nuts on the base of the top slide.

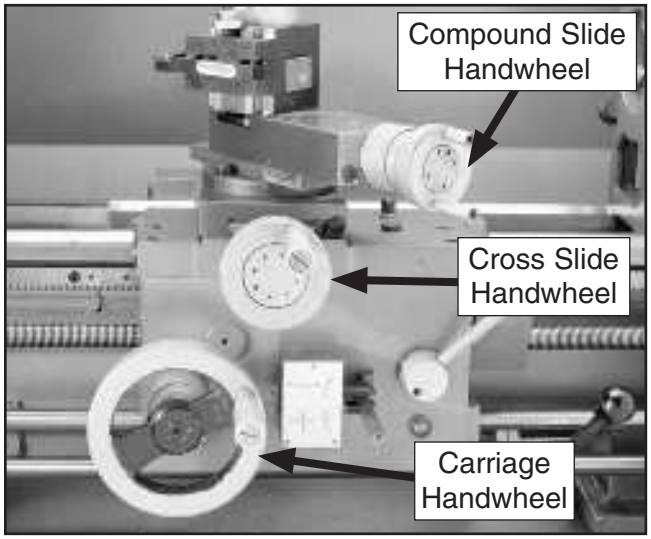


Figure 26. Handwheel locations.

Cross Slide Handwheel - The Cross Slide Handwheel moves the top slide toward and away from the work. Turning the dial clockwise moves the slide toward the workpiece. The graduated dial can be adjusted by holding the handwheel with one hand and turning the dial with the other.

Carriage Handwheel - The Longitudinal Handwheel moves the carriage left or right along the bed. The control is helpful when setting up the machine for turning or when manual movement is desired during turning operations.

Figure 27. Spindle rotation control lever.

Spindle rotation control - The spindle rotation is controlled from the lever on the right hand side of the carriage. Moving the lever down causes the spindle to rotate counter clockwise. Moving the lever up causes the spindle to turn clockwise. The middle position stops the motor and the lever is considered to be in a neutral position. See **Figure 27**.

Tool Post & Holder

Tool post - A quick change tool post and 2 tool holders are supplied with the Model G4002/3. **Figure 28** shows tool post and a holder with optional bit. Cutting tools can be secured and removed by tightening or loosening the clamping screws in the top of the holder. A threaded stud is mounted in the top of the holder and has a knurled thumb wheel. Rotating the thumb wheel allows for adjustment of the tool holder so the cutting tool can be centered. The handle on the tool post can be rotated to lock and unlock the tool holder onto the dovetail ways. The tool post may be rotated by loosening the nut at the top of the tool post.

More styles of tool holders are available through Grizzly Industrial, Inc. Consult the latest catalog for styles, prices and ordering information.

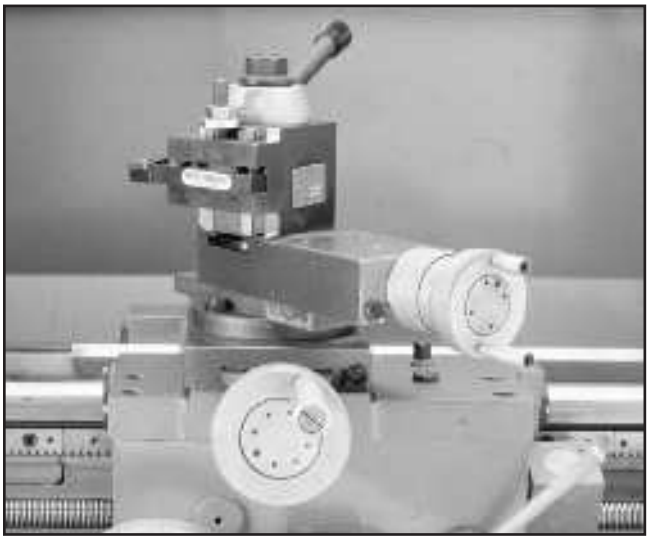


Figure 28. Quick change tool post.

Tailstock Controls

The tailstock serves many functions. The primary use is for holding centers and drill chucks. The barrel has a Morse taper #3 bore and is imprinted with graduations in millimeters and inches. Please refer to **Figure 29**.

Tailstock Handwheel - Turning the handwheel advances or retracts the barrel in the tailstock. The graduated dial on the handwheel is adjustable.

Top Lock Lever - This lever locks the tailstock barrel in place.

Side Lock Lever - This lever locks the tailstock in place on the lathe bed.

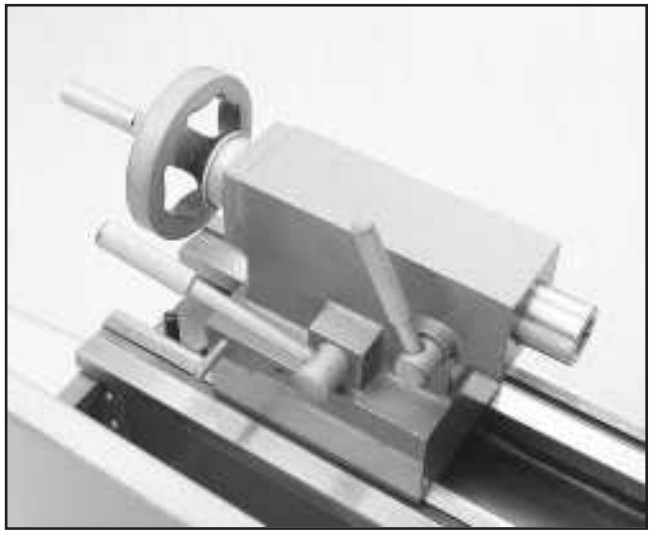


Figure 29. Detail of tailstock controls.

⚠WARNING

Always make sure the power switch is in the "off" position and the spindle control lever is in the neutral position before plugging in power cord.

Test Run

Now that the lathe is securely in place and you've read the safety guidelines, it's time to give the machine a test run.

Before starting the machine:

1. Make sure the machine is properly grounded, the Power Switch is in the "OFF" position and the spindle control lever is in the neutral position. See **Figure 30**.

2. Inspect the machine to ensure that all hand tools are out of the way, guards are in place and nothing is impeding the movement of the chuck. Check this by rotating the chuck by hand.

3. Rotate the stop switch, on the headstock of the lathe, in the direction indicated by the arrows imprinted on the button.

4. Lower the control lever on the apron. The spindle should start turning in a counter clockwise direction.

If the direction is reversed, contact our service department for further instructions.

5. If the lathe is running correctly, lift the spindle control lever to the neutral position, wait for the machine to come to a complete stop and take some time to become familiar with the various controls.

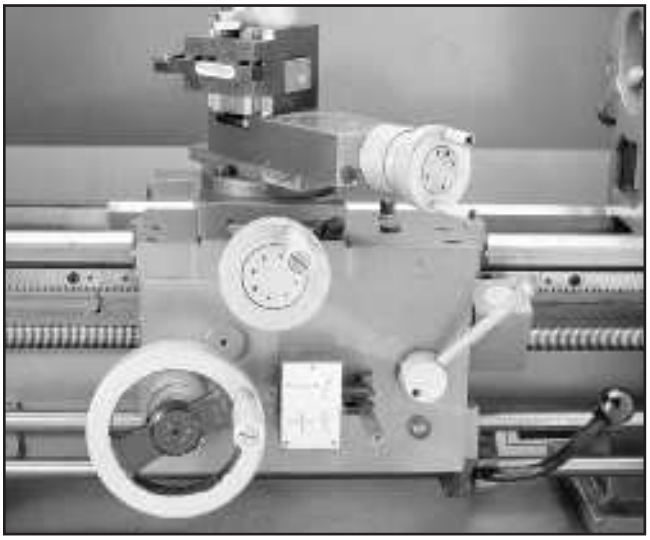


Figure 30. Carriage control lever in neutral.

SECTION 5: ADJUSTMENTS

Gibs

There are three main gib adjustments for the Model G4002/3. They are: the cross-slide gib, the compound slide gib and the saddle gib.

Cross-slide Gib - The gib on the cross-slide is adjusted by the two screws located at each end. See **Figure 31**. To adjust, loosen the set-screw located along the edge of the cross-slide. This setscrew is provided for locking the slide for certain operations. After making the adjustments detailed below, tighten the setscrew until it just touches the gib.

The gib is wedge shaped and by loosening the screw closest to the operator and then tightening the opposite screw, the slide will become looser. Conversely, loosening the screw furthest away from the operator and tightening the closer screw will tighten the gib. Do not over tighten. Adjust the gib so that it creates a slight drag when the slide is in motion. Test the ease of motion with the gib slightly loose. Begin tightening the gib and test after making small adjustments. When a slight drag is detected the gib is properly adjusted.

NOTICE

When adjusting gibs, keep in mind that the goal of gib adjustment is to remove unnecessary sloppiness from the slide's movement without causing them to bind. Loose gibs may cause poor finishes on the workpiece. Over tightening may cause premature wear.

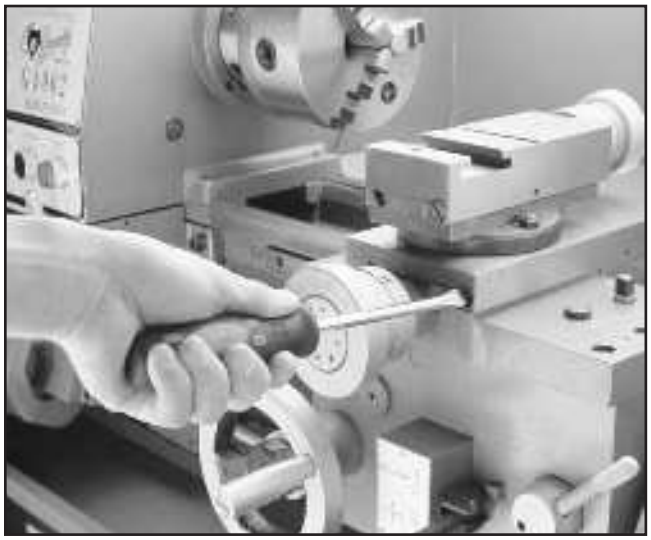


Figure 31. Adjusting the cross-slide gib.

Compound Gib - The gib on the compound is adjusted by the same method as the gibs on the cross-slide, except the screw closest to the operator (when the compound slide is aligned with the cross slide) must be loosened and the screw furthest from the operator tightened to make the gib tighter. See **Figure 32**.

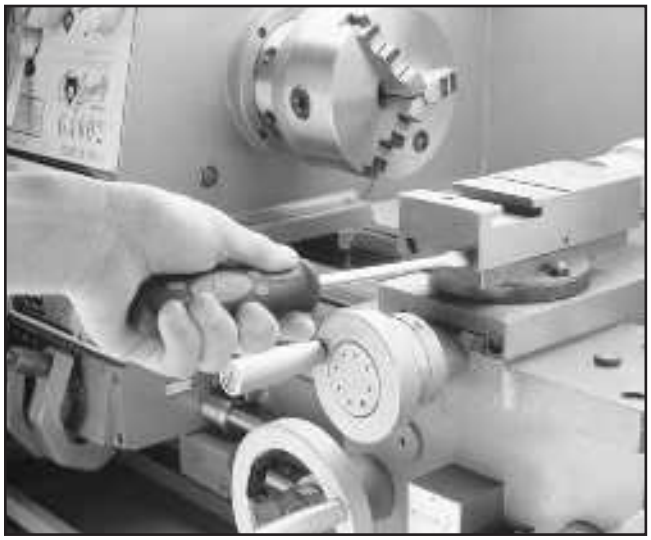


Figure 32. Tightening this screw tightens gib.

Saddle Gib - The saddle is supplied with a square head bolt on the front right hand side of the slide. Before making adjustments to the saddle gib, ensure that this bolt is loose by turning it counter clockwise. See **Figure 33**.

It is important that the apron gib be properly adjusted. A loose gib will cause finish problems in a workpiece. A gib adjusted too tightly will cause premature wear.

The gib for the saddle is located on the bottom of the back edge of the slide. The tension on this gib is maintained by four setscrews with jam nuts. By loosening the jam nuts and tightening the setscrews, the gib will tighten. Loosening the setscrews will loosen the gib. The gib strip is properly adjusted when a slight drag is detected while moving the apron. Do not over tighten.

It is important the 4 setscrews are tightened evenly. When tightening the jam nuts, hold the setscrew's position using an Allen® wrench.

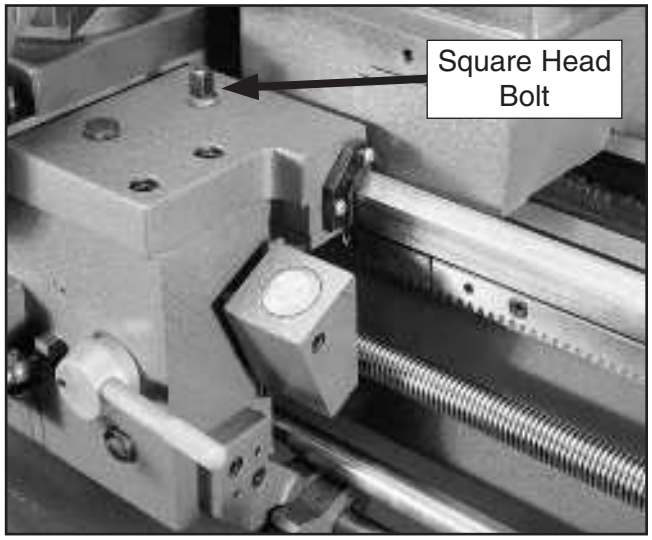


Figure 33. This bolt locks the apron in place.

Steady/Follow Rest

To adjust the Steady Rest:

1. Loosen the lock nuts. See **Figure 34**.

2. Open the sliding fingers by turning the knurled screws until they fit around the workpiece. Secure the steady rest in position.

3. Tighten the knurled screws so that the fingers are snug, but not tight against the workpiece. Tighten the setscrews and the lock nuts.

4. Lubricate the brass points with machine oil.

The Follow Rest is setup in the same manner except that the place of the third finger is taken up by the tool bit. The follow rest prevents long, small diameter pieces from flexing under the cutting pressure from the tool bit.

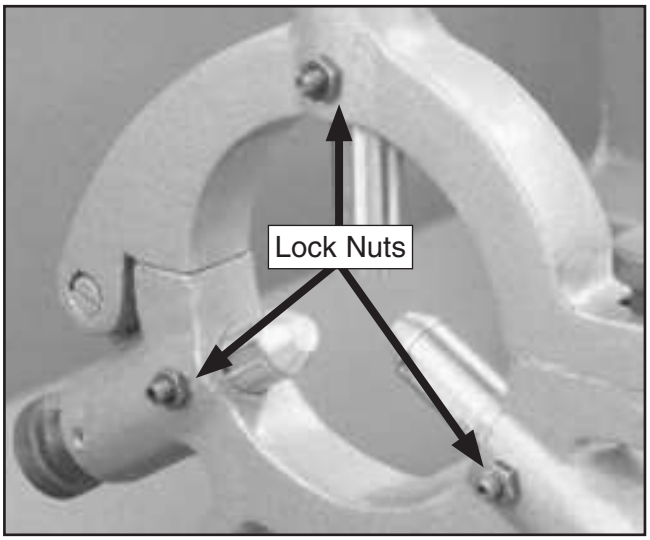


Figure 34. Steady rest lock nuts.

Tailstock

The tailstock on the Model G4002/3 is aligned at the factory with the headstock. It is recommended that you take the time to ensure that the tailstock is aligned to your own desired tolerances.

To align the tailstock:

1. Center drill a 6" long piece of bar stock on both ends. Set it aside for use in step 4.

2. Make a dead center by turning a shoulder to make a shank. Flip the piece over in the chuck and turn a 60° point. See **Figure 35**. As long as it remains in the chuck, the point of your center will be accurate to your spindle's axis. Keep in mind that the point will have to be refinished whenever it is removed and returned to the chuck.

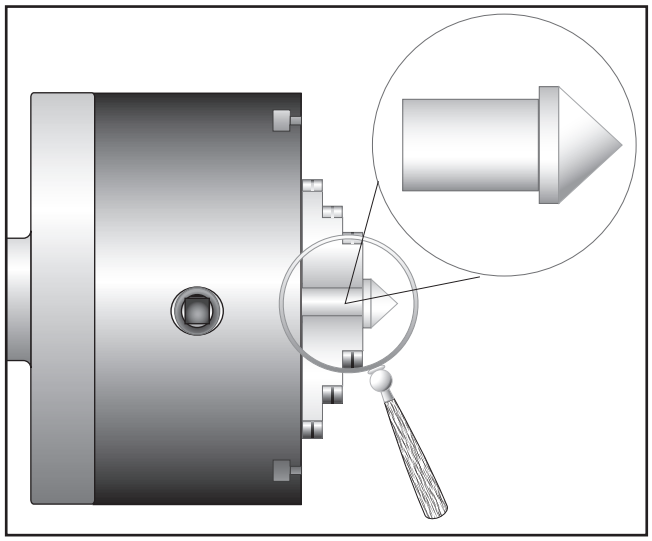


Figure 35. Finished dead center.

3. Place the live center in your tailstock.

4. Attach a lathe dog to the bar stock and mount it between the centers. See **Figure 36**.

5. Turn approximately .010" off the diameter.

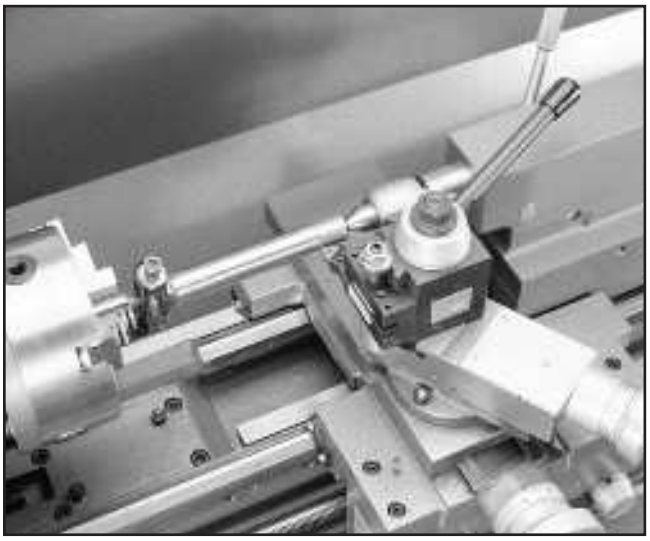


Figure 36. Bar stock mounted on centers.

TIP

Before making adjustments to the tailstock, mount a dial indicator so that the dial's plunger is on the tailstock barrel. **See Figure 37.**

6. Measure the stock with a micrometer. If the stock is fat at the tailstock end, the tailstock needs to be moved toward you the amount of the taper. See **Figure 37**.

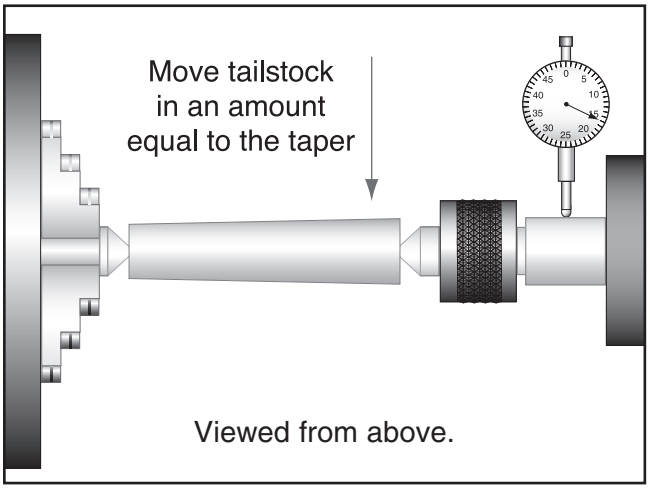


Figure 37. Adjusting for headstock end taper.

—If the stock is thinner at the tailstock end, the tailstock needs to be moved away from the operator by at least the amount of the taper. See **Figure 38**.

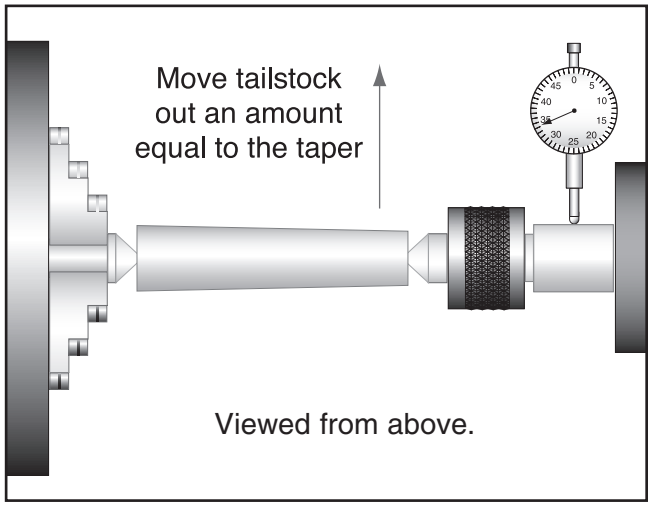


Figure 38. Adjusting for tailstock end taper.

7. Loosen the tailstock mounting bolt. Adjust the tailstock offset by the amount of the taper by turning the adjustment setscrews. See **Figure 39**. Turn another .010" off of the stock and check for taper. Repeat as necessary until the desired amount of accuracy is achieved.

NOTICE

Lock down the tailstock after each adjustment.

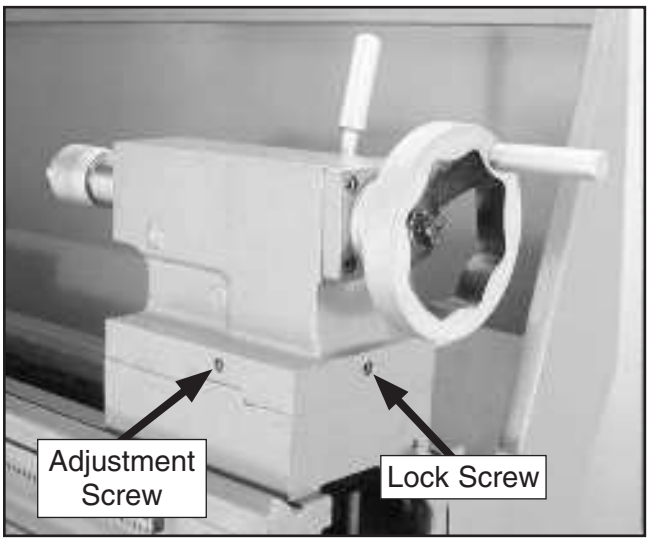


Figure 39. Tailstock offset adjustment screw.

SECTION 6: MAINTENANCE

⚠WARNING

Always disconnect the electric power to the machine before servicing. Never lubricate your lathe while it is running.

Lubrication

Component	Lubricant
Headstock	Grizzly T23963 (or ISO 32 equiv.)
Apron	Grizzly T23962 (or ISO 68 equiv.)
Ball Oilers	Grizzly T23963 (or ISO 32 equiv.)
Oil Ports	Grizzly T23963 (or ISO 32 equiv.)
Leadscrew	Grizzly T23962 (or ISO 68 equiv.)
Bed Ways	Grizzly T23962 (or ISO 68 equiv.)
End Gears	NLGI #2 Lithium Grease

Headstock Gearbox: The oil in the headstock should be changed after the first 2 hours of use, then every 6 months, depending on usage.

The headstock reservoir requires approximately 3.5 quarts of oil. Use Grizzly T23963 or another ISO 32 equivalent. The fill cap is located on top of the headstock. The drain plug and sight glass are located near the spindle nose (see **Figure 40**). Add oil until the oil level is in the middle of the sight glass.

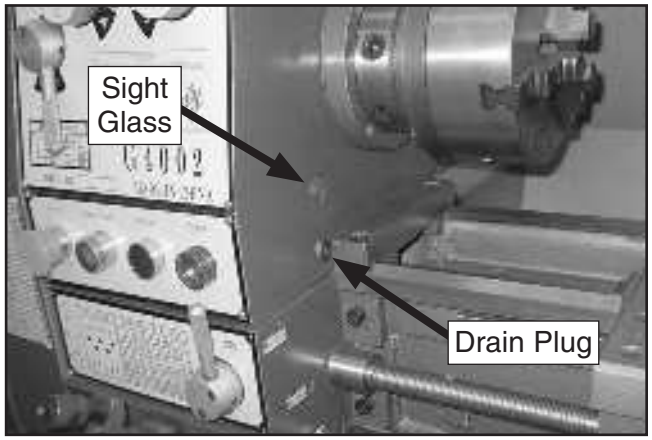


Figure 40. Headstock sight glass and drain plug.

Quick Change Gearbox: Lubrication for the Gearbox is provided through 3 oil points, labeled oil nipple. Add a squirt or two of oil after every three-to-four hours of use. See **Figure 41**.

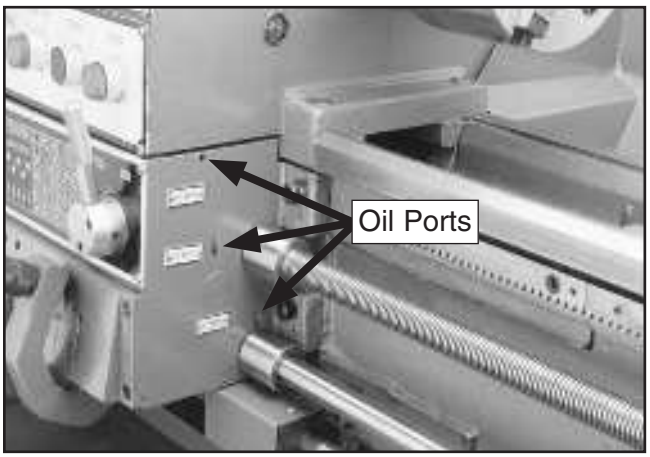


Figure 41. Gearbox lubrication points.

End Gears: Apply a thin coating of grease to the end gears. Avoid applying excess grease to the gears. Apply one squirt of ISO 32 oil into the port shown in **Figure 42**.

Note: *Problems can occur if excess grease is flung onto the V-belts during operation, causing a loss of power from the belts slipping on the pulleys. If this happens, remove and discard the contaminated V-belts, clean the pulleys with mineral spirits or solvent, and install new V-belts.*

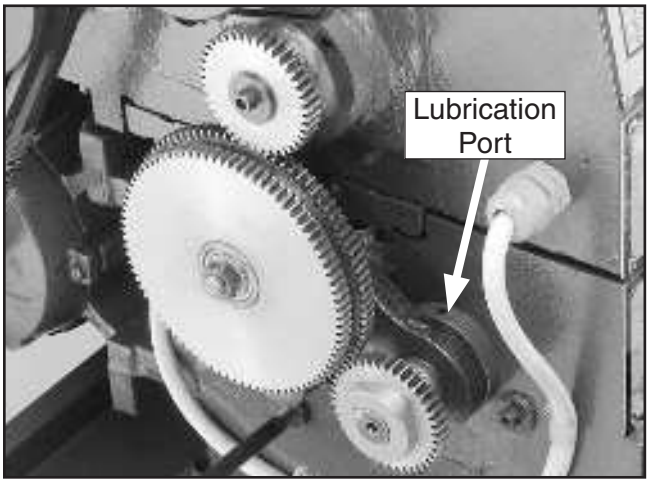


Figure 42. External gears and port.

Slides and Ways: Apply ISO 68 oil to the ways and slides after each use. Wipe the ways with a clean rag prior to lubrication to ensure that no grime is carried along with your lubricant into friction-sensitive areas. Applying oil to the bedways and other bare metal parts also protects the lathe from rust and pitting.

Apron: Use Grizzly T23962 or an ISO 68 equivalent. The drain plug is located underneath the apron. The fill plug is located on top of the apron. Add oil until the oil level is in the middle of the site glass, which is located on the face of the apron.

Saddle, Cross Slide and Compound Ball Oilers: Add 1-2 drops of oil to the ball oilers shown in **Figure 43**.

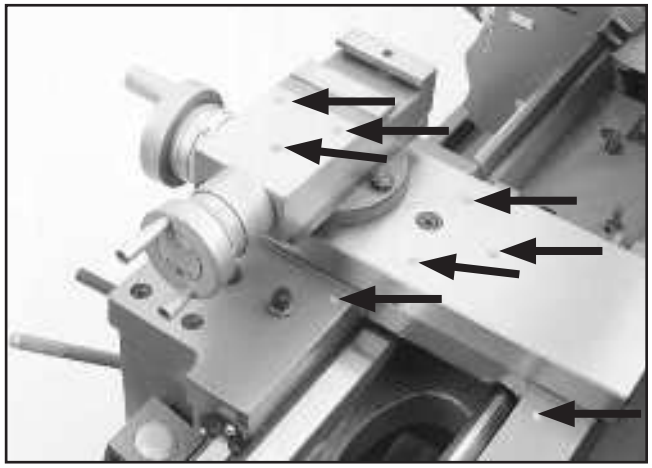


Figure 43. Saddle, cross slide, compound rest.

Lead Screw and Feed Rod: Be sure to clean and lubricate the leadscrew, feed rod and switch control rod. The lead screw and feed rod have a bearing on the tail stock end support that will require one to two squirts of oil. See **Figure 44**.

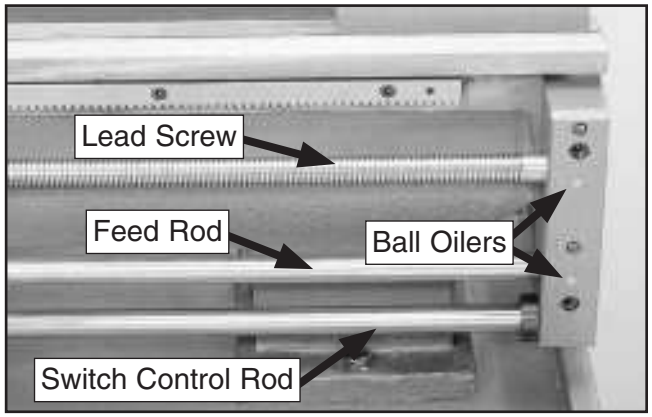


Figure 44. Lead screw, feed rod and switch rod.

Tailstock: The tailstock is fitted with one oiling port. The tailstock barrel may be oiled directly. Apply oil each week, or after every five uses (depending on the frequency of operation). Be sure to clean the slide ways for the tailstock and lift the tailstock and squirt a few drops of oil on the ways. It is a good idea to remove the tailstock once a month and wipe the bottom thoroughly and replace. See **Figure 45**.

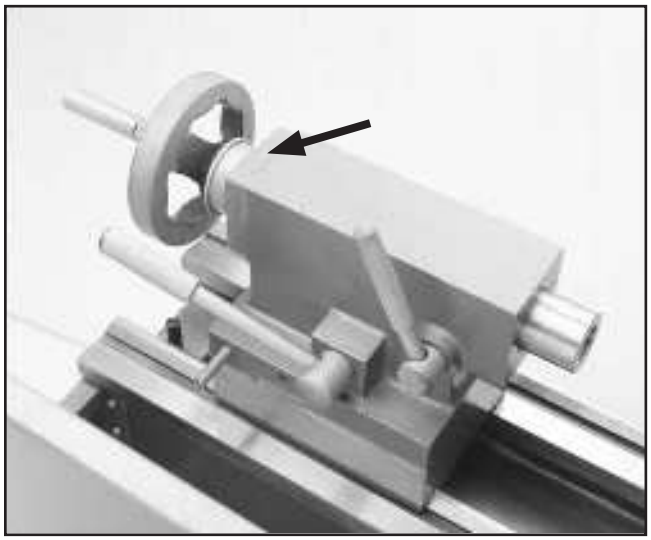


Figure 45. Tailstock oiling point.

Bearing Preload

This lathe is shipped from the factory with the bearing preload already set. If the preload requires resetting for whatever reason, please contact our service department for further instructions.

SECTION 7: CLOSURE

The following pages contain wiring, parts diagram, parts lists and Warranty/Return information for your Model G4002/3.

If you need parts or help in assembling your machine, or if you need operational information, we encourage you to call our Service Department. Our trained service technicians will be glad to help you. If you have comments dealing specifically with this manual, please write to our Bellingham, Washington location using the address in the Introduction section of this manual.

The specifications, drawings, and photographs illustrated in this manual represent the Model G4002/3 as supplied when the manual was prepared. However, due to Grizzly's policy of continuous improvement, changes may be made at any time with no obligation on the part of Grizzly. Whenever possible, though, we send manual updates to all owners of a particular tool or machine. Should you receive one, add the new information to this manual and keep it for reference.

We have included some important safety measures that are essential to this machine's operation. While most safety measures are generally universal, Grizzly reminds you that each work shop is different and safety rules should be considered as they apply to your specific situation.

We recommend you keep a copy of our current catalog for complete information regarding Grizzly's warranty and return policy. If you need additional technical information relating to this machine, or if you need general assistance or replacement parts, please contact the Service Department listed in the General Information.

This machine is designed for highly-skilled individuals who have an understanding of metalworking. We realize there are numerous kinds of cutters and specialized techniques used to turn metals. To list all of the techniques necessary to operate a metal lathe correctly for specific applications would require many volumes. Additional information sources are necessary to realize the full potential of this machine. Trade journals, metalworking magazines, and your local library are good places to start.

⚠WARNING

As with all power tools, there is danger associated with the Model G4002/3. Use the tool with respect and caution to lessen the possibility of mechanical damage or operator injury. If normal safety precautions are overlooked or ignored, injury to the operator or others in the area is likely.

NOTICE

The Model G4002/3 was specifically designed for turning operations. Do not modify and/or use this LATHE for any other purpose. Modifications or improper use of this tool will void the warranty. If you are confused about any aspect of this machine, DO NOT use it until you have answered all your questions.

SECTION 8: WIRING

These pages are current at the time of printing. However, in the spirit of improvement, we may make changes to the electrical systems of future machines. Compare the manufacture date of your machine to the one stated in this manual, and study this section carefully.

If there are differences between your machine and what is shown in this section, call Technical Support at (570) 546-9663 for assistance BEFORE making any changes to the wiring on your machine. An updated wiring diagram may be available. **Note:** *Please gather the serial number and manufacture date of your machine before calling. This information can be found on the main machine label.*

⚠WARNING
Wiring Safety Instructions

SHOCK HAZARD. Working on wiring that is connected to a power source is extremely dangerous. Touching electrified parts will result in personal injury including but not limited to severe burns, electrocution, or death. Disconnect the power from the machine before servicing electrical components!

MODIFICATIONS. Modifying the wiring beyond what is shown in the diagram may lead to unpredictable results, including serious injury or fire. This includes the installation of unapproved aftermarket parts.

WIRE CONNECTIONS. All connections must be tight to prevent wires from loosening during machine operation. Double-check all wires disconnected or connected during any wiring task to ensure tight connections.

CIRCUIT REQUIREMENTS. You MUST follow the requirements at the beginning of this manual when connecting your machine to a power source.

WIRE/COMPONENT DAMAGE. Damaged wires or components increase the risk of serious personal injury, fire, or machine damage. If you notice that any wires or components are damaged while performing a wiring task, replace those wires or components.

MOTOR WIRING. The motor wiring shown in these diagrams is current at the time of printing but may not match your machine. If you find this to be the case, use the wiring diagram inside the motor junction box.

CAPACITORS/INVERTERS. Some capacitors and power inverters store an electrical charge for up to 10 minutes after being disconnected from the power source. To reduce the risk of being shocked, wait at least this long before working on capacitors.

EXPERIENCING DIFFICULTIES. If you are experiencing difficulties understanding the information included in this section, contact our Technical Support at (570) 546-9663.

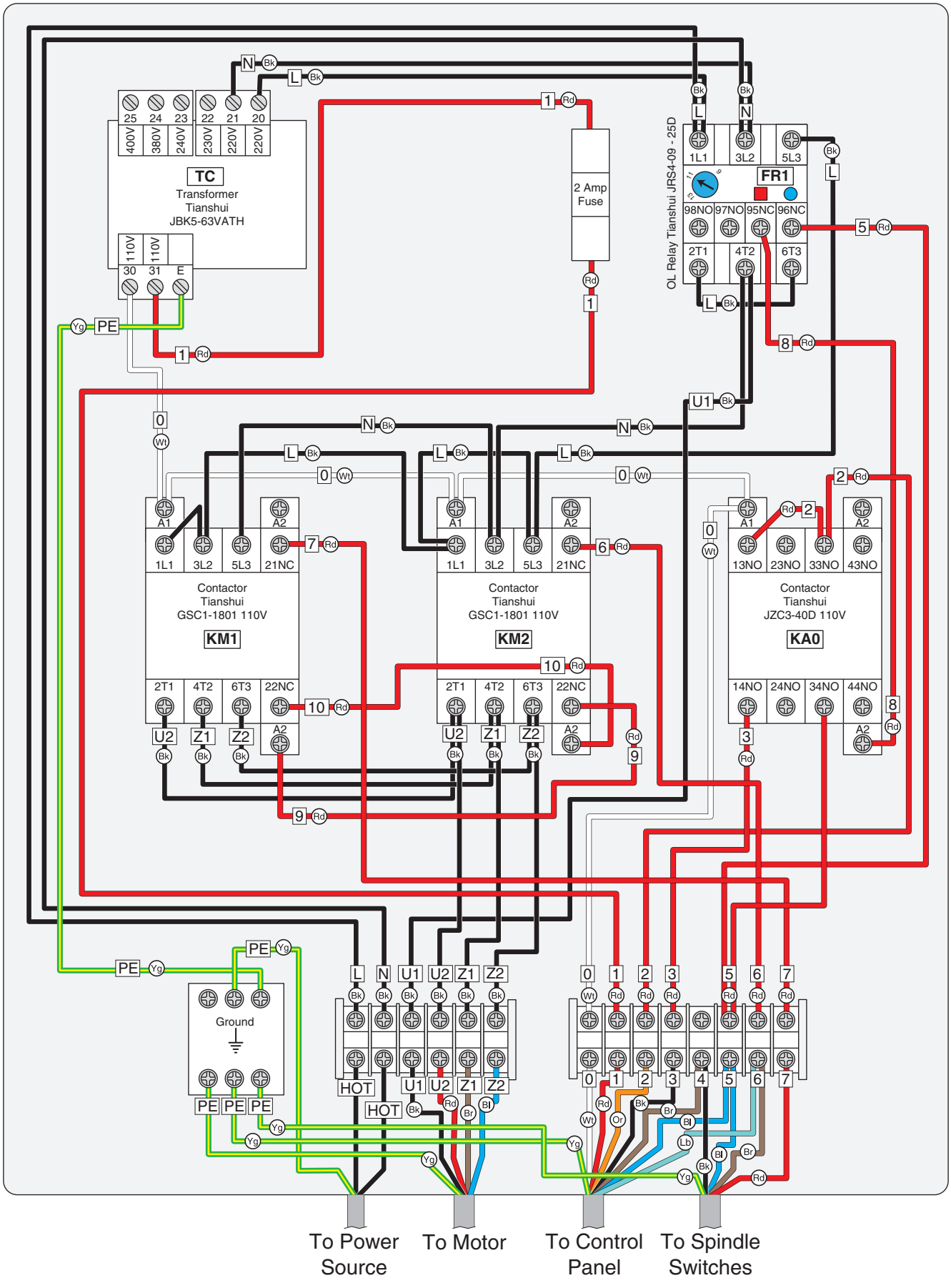
NOTICE

The photos and diagrams included in this section are best viewed in color. You can view these pages in color at www.grizzly.com.

COLOR KEY

BLACK	Bk	BLUE	Bl	YELLOW	Yl	LIGHT BLUE	Lb
WHITE	Wt	BROWN	Br	YELLOW GREEN	Yg	BLUE WHITE	Bw
GREEN	Gn	GRAY	Gy	PURPLE	Pu		
RED	Rd	ORANGE	Or	PINK	Pk	TURQUOISE	Tu

Electrical Cabinet Wiring Diagram



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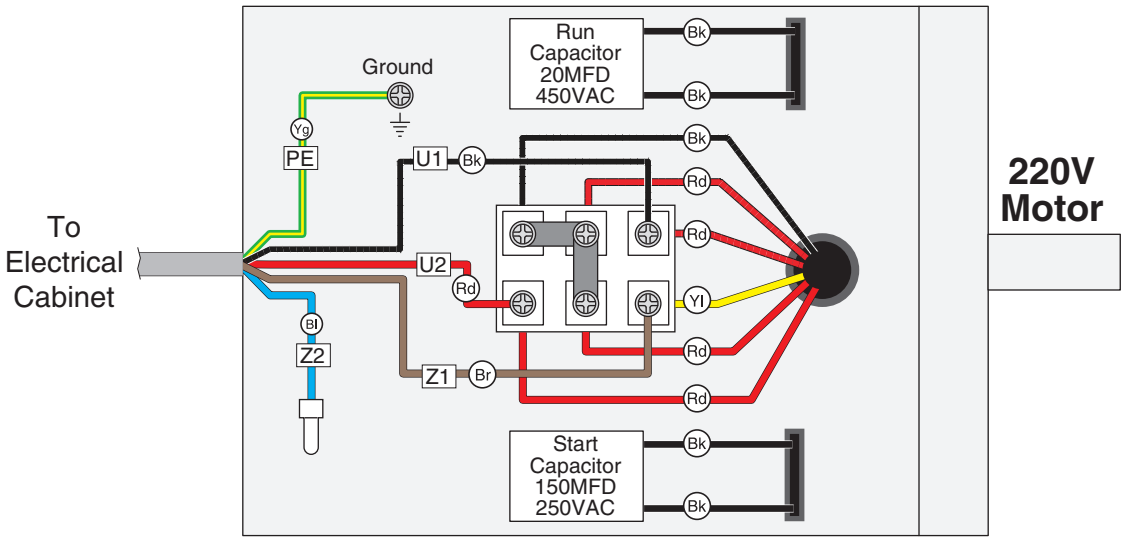
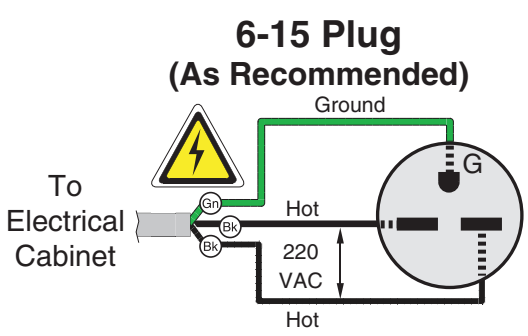
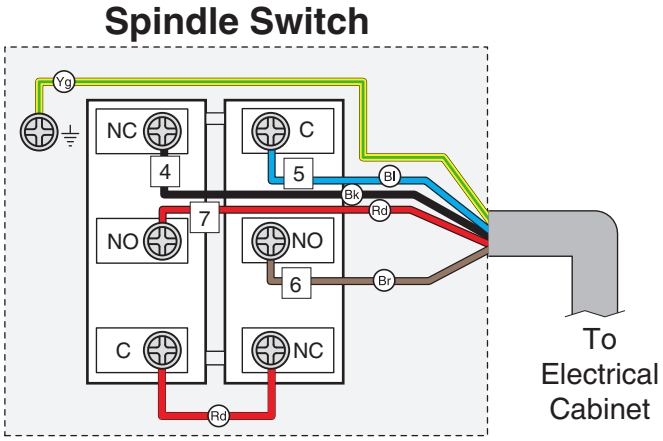
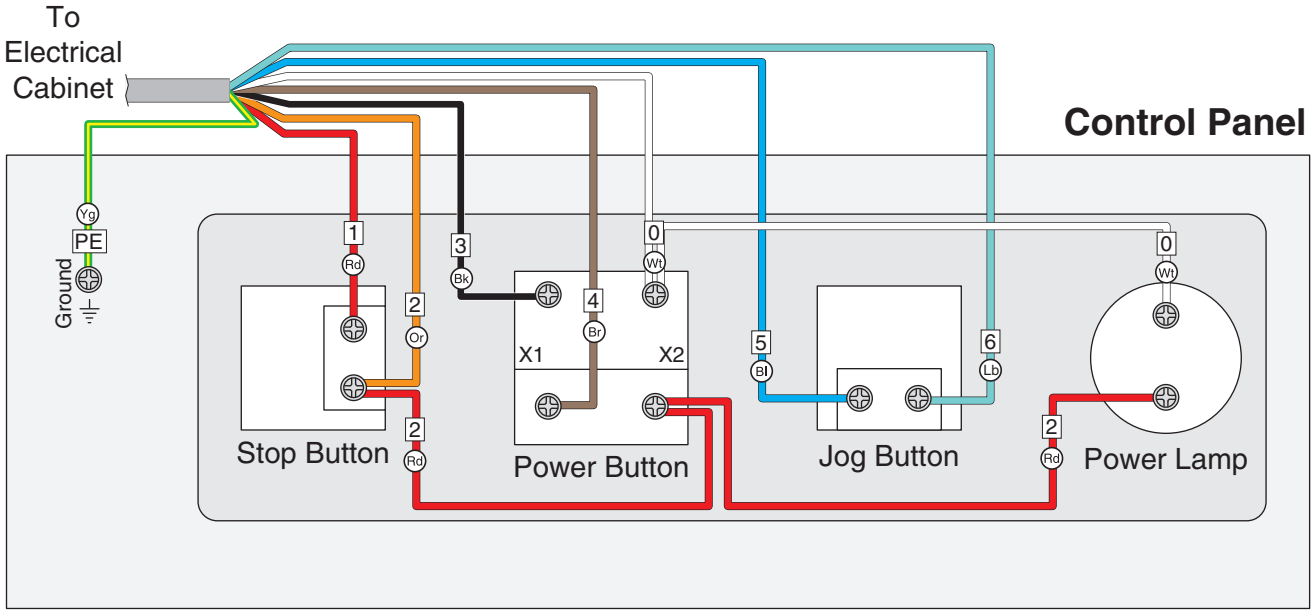
Motor & Control Panel Wiring Diagram









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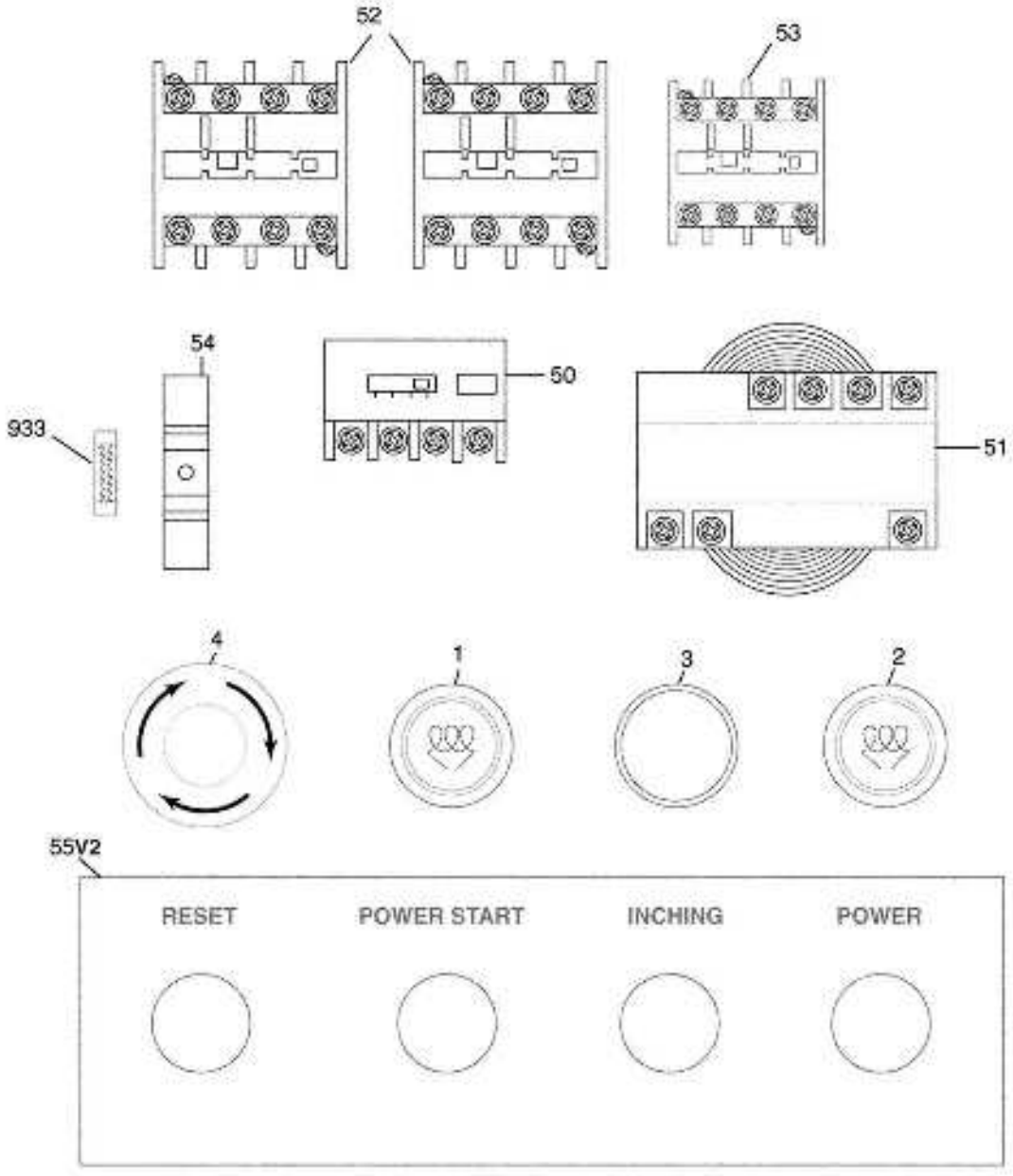
SECTION 9: PARTS

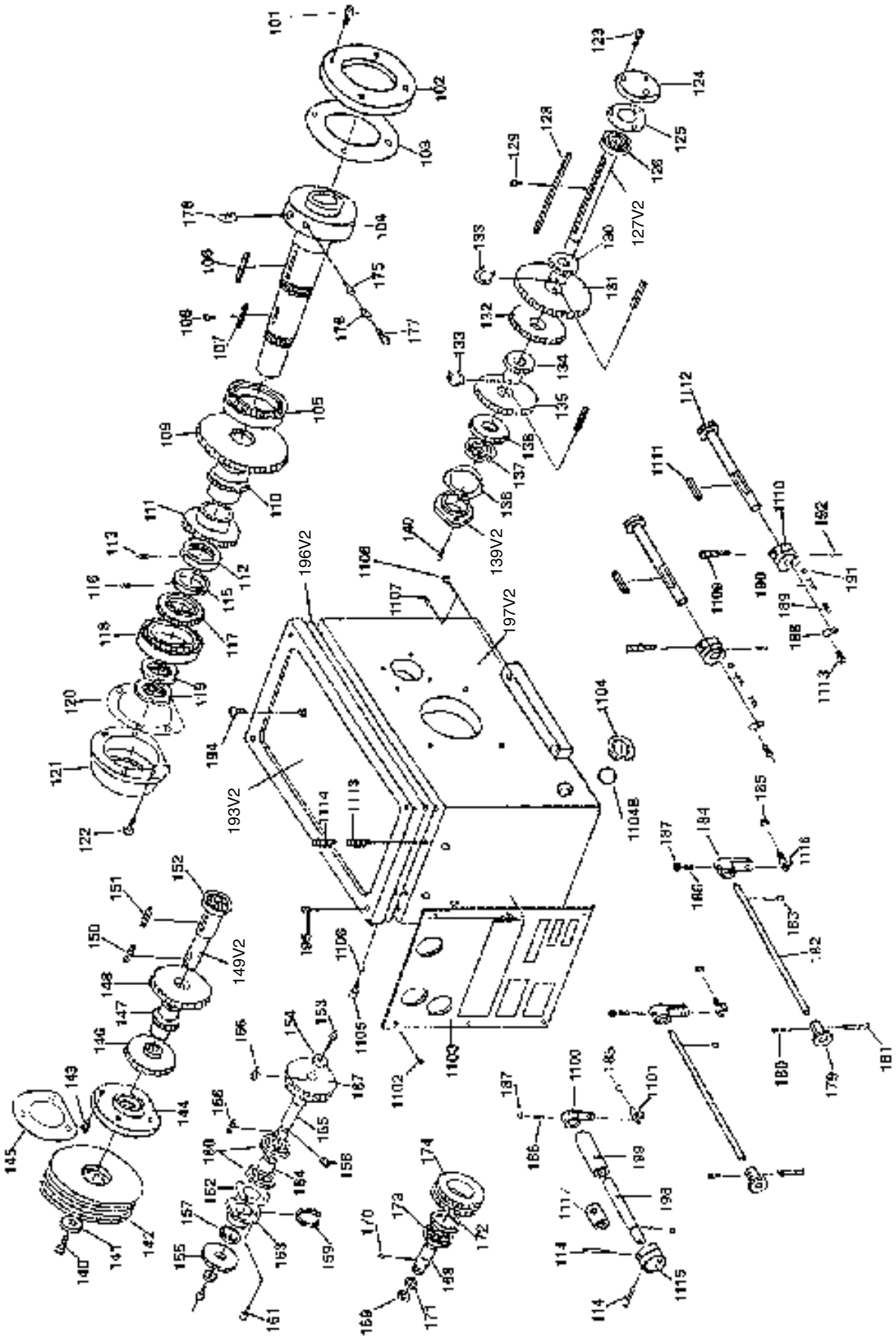
Electrical



REF	PART #	DESCRIPTION
1	P4002001	START BUTTON
2	P4002002	INDICATOR LIGHT
3	P4002003	JOG BUTTON
4	P4002004	RESET BUTTON
50	P4002050	THERMAL PROT. BLOCK
51	P4002051	TRANSFORMER

REF	PART #	DESCRIPTION
52	P4002052	CONTACTOR GSC1CJX4-D 110V
53	P4002053	CONTACTOR JZC3-40D 110V
54	P4002054	FUSE HOLDER
55V2	P4002055A	CONTROL PANEL PLATE V2.03.07
933	P4002933	FUSE 2 AMP

Headstock



Headstock Parts List

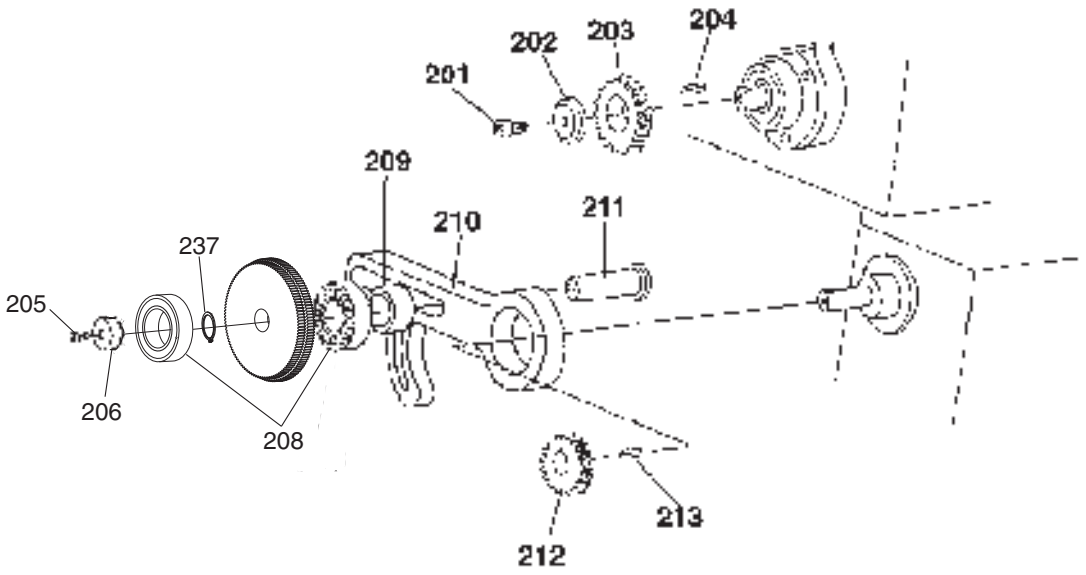
REF	PART #	DESCRIPTION
101	P4002101	CAP SCREW M6-1 X 25
102	P4002102	COVER
103	P4002103	OIL SEAL
104	P4002104	SPINDLE 16"
105	P4002105	BEARING D-7212
106	P4002106	KEY 8 X 8 X 80
107	P4002107	KEY
108	P4002108	CAP SCREW M3-.5 X 8
109	P4002109	GEAR 37T/74T
110	P4002110	GEAR 46T
111	P4002111	GEAR 59T
112	P4002112	NUT 58OD
113	P4002113	CAP SCREW M8-1.25 X 10
114	P4002114	ROLL PIN 5 X 40
115	P4002115	COLLAR
116	P4002116	CAP SCREW M3-.5 X 8
117	P4002117	GEAR
118	P4002118	BEARING D-7211
119	P4002119	NUT
120	P4002120	OIL SEAL
121	P4002121	COVER
122	P4002122	CAP SCREW M8-1.25 X 20
123	P4002123	CAP SCREW M6-1 X 12
124	P4002124	COVER
125	P4002125	OIL SEAL
126	P4002126	BALL BEARING 6304 ZZ
127V2	P4002127V2	SHAFT 219MM V2.01.03
128	P4002128	KEY 8 X 180
129	P4002129	CAP SCREW M3-.5 X 8
130	P4002130	GEAR
131	P4002131	GEAR
132	P4002132	GEAR
133	P4002133	INT RETAINING RING 15MM
134	P4002134	GEAR
135	P4002135	GEAR
136	P4002136	GEAR
137	P4002137	BALL BEARING 6004 OPEN
138	P4002138	OIL SEAL
139V2	P4002139V2	COVER 45MM V2.01.03
140	P4002140	CAP SCREW M8-1.25 X 20
141	P4002141	WASHER
142	P4002142	PULLEY
143	P4002143	CAP SCREW M6-1 X 12
144	P4002144	COVER
145	P4002145	OIL SEAL
146	P4002146	GEAR
147	P4002147	GEAR
148	P4002148	GEAR
149V2	P4002149V2	SHAFT 178MM V2.01.03
150	P4002150	KEY CS X 80
151	P4002151	KEY 5 X 5 X 80
152	P4002152	BALL BEARING 6004 OPEN
153	P4002153	CAP SCREW M6-1 X 12

REF	PART #	DESCRIPTION
154	P4002154	WASHER
155	P4002155	GEAR 40T
156	P4002156	KEY CS X 8
157	P4002157	OIL SEAL 25 X 40 X 10 V1.10.96
158	P4002158	EXT RETAINING RING 20MM
159	P4002159	INT RETAINING RING 40MM
160	P4002160	BALL BEARING 6004 OPEN
161	P4002161	CAP SCREW M6-1 X 12
162	P4002162	OIL SEAL
163	P4002163	COVER
164	P4002164	COLLAR
165	P4002165	SHAFT 117MM
166	P4002166	KEY 5 X 5 X 20
167	P4002167	GEAR
168	P4002168	SHAFT
169	P4002169	OIL SEAL 17 X 2.65
170	P4002170	SET SCREW M8-1.25 X 6
171	P4002171	C-CLIP
172	P4002172	INT RETAINING RING 47MM
173	P4002173	BALL BEARING 6204 OPEN
174	P4002174	GEAR 38T/45T
175	P4002175	LOCK PIN
176	P4002176	SPRING 6 X 4 X 22
177	P4002177	CAP SCREW M8-1.25 X 16
178	P4002178	ECCENTRIC SHAFT
179	P4002179	GEAR
180	P4002180	SET SCREW M8-1.25 X 10
181	P4002181	ROLL PIN 6 X 5
182	P4002182	SHAFT
183	P4002183	OIL SEAL
184	P4002184	SHAFT ARM
185	P4002185	C-CLIP
186	P4002186	CAP SCREW M8-1.25 X 16
187	P4002187	HEX NUT M8-1.25
188	P4002188	SIGN BOARD
189	P4002189	SET SCREW M8-1.25 X 8
190	P4002190	COMPRESSIONSPRING 1.2 X 48 X 27
191	P4002191	STEEL BALL 6MM
192	P4002192	SET SCREW M6-1 X 20
193V2	P4002193V2	COVER 10-3/8" V2.01.03
194	P4002194	SCREW
195	P4002195	CAP SCREW M6-1 X 25
196V2	P4002196V2	OIL SEAL V2.09.05
197V2	P4002197V2	HEADSTOCK V2.01.03
198	P4002198	SHAFT
199	P4002199	COLLAR
1100	P40021100	SHIFTER ARM
1101	P40021101	SHIFTER
1102	P40021102	STEEL FLUTED RIVET 2 X 5MM
1103	P40021103	NAME PLATE
1104	P40021104	OIL WINDOW 12MM
1104B	P40021104B	O-RING 15 X 2.65
1105	P40021105	CAP SCREW M8-1.25 X 30

REF	PART #	DESCRIPTION
1106	P40021106	OIL SEAL 9.5 X 2.65
1107	P40021107	CAP SCREW M8-1.25 X 30
1108	P40021108	HEX BOLT M8-1.25 X 40
1109	P40021109	HANDLE
1110	P40021110	BOSS
1111	P40021111	KEY 5 X 5 X 15

REF	PART #	DESCRIPTION
1112	P40021112	GEAR
1113	P40021113	CAP SCREW M6-1 X 8
1114	P40021114	CAP SCREW M6-1 X 8
1115	P40021115	BOSS
1116	P40021116	SHIFTER
1117	P40021117	COLLAR

Change Gear Train

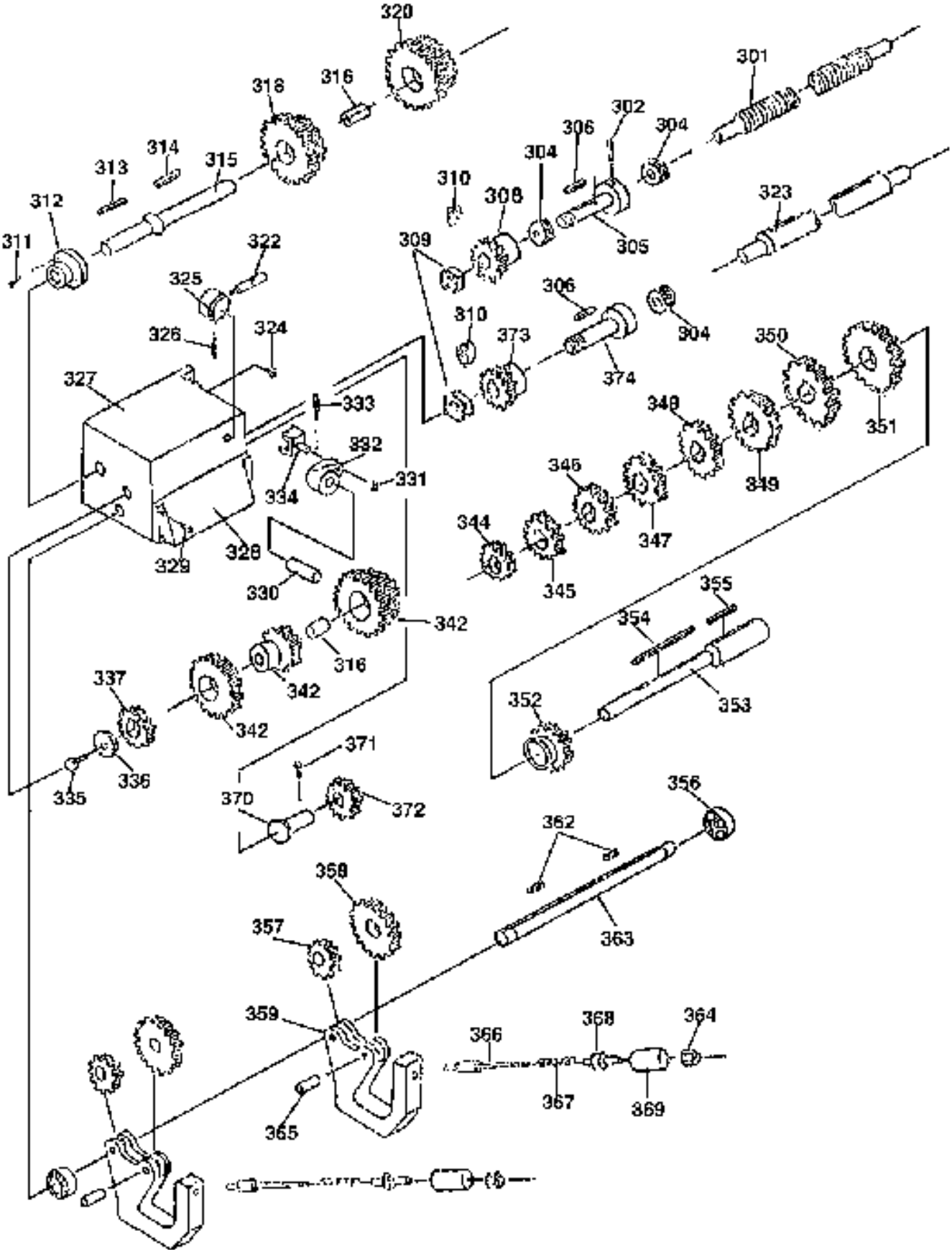


(Alternate gears: 938V2, 945)

REF	PART #	DESCRIPTION
201	P4002201	CAP SCREW M6-1 X 12
202	P4002202	WASHER
203	P4002203	GEAR
204	P4002204	KEY 5 X 5 X 30
205	P4002205	CAP SCREW M6-1 X 12
206	P4002206	WASHER
207B	P4002207B	GEAR 86T/91T V3.08.05
208	P4002208	BALL BEARING 6003-2RS

REF	PART #	DESCRIPTION
209	P4002209	SPACER
210	P4002210	QUADRANT
211	P4002211	SHAFT
212	P4002212	GEAR 40T
213	P4002213	KEY 5 X 5 X 30
237	P4002237	EXT RETAINING RING 35MM
938V2	P4003938V2	GEAR 35T V2.08.05
945	P4003945	GEAR 36T

Quick Change Gearbox

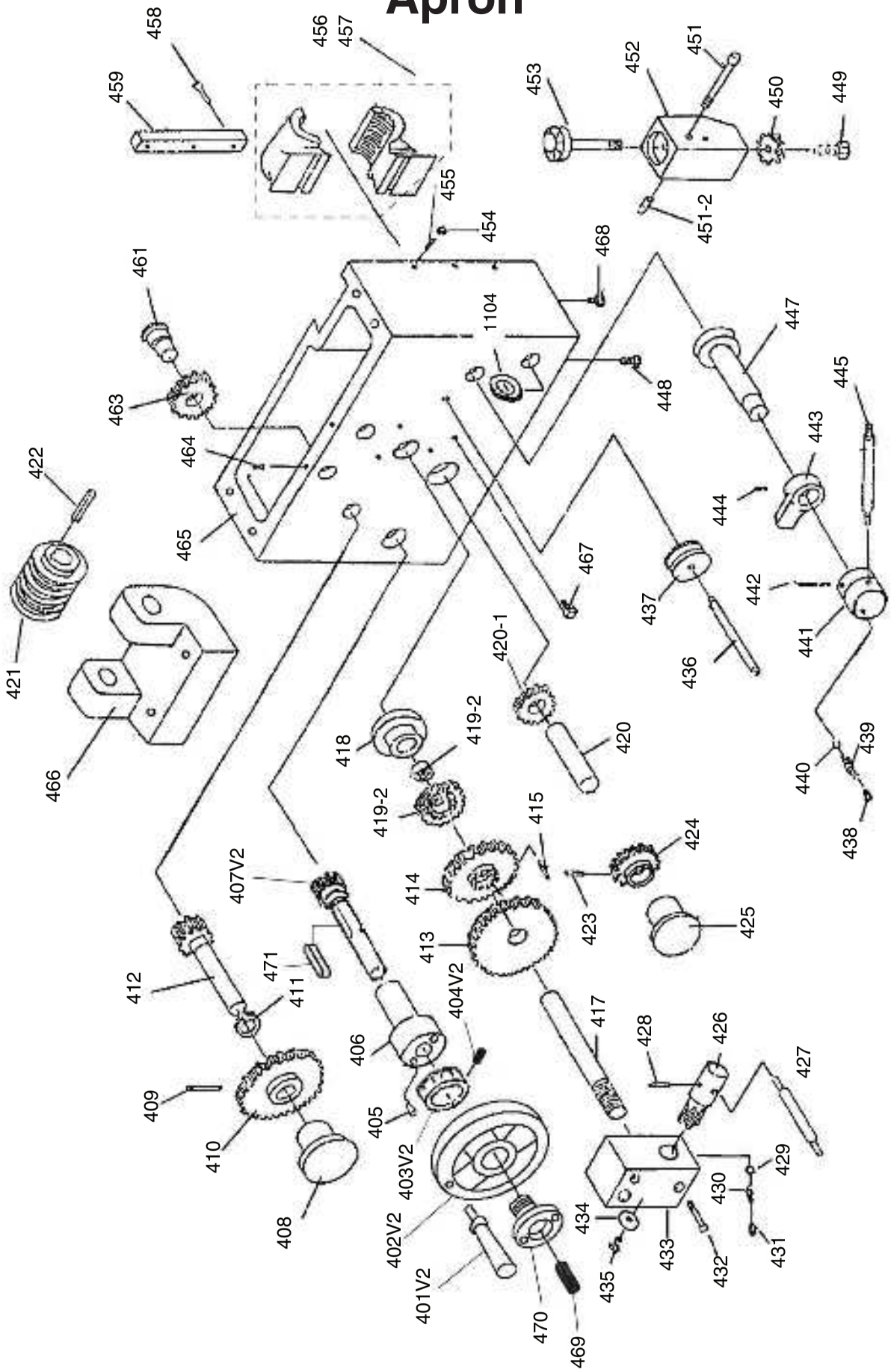


Quick Change Gearbox Parts List

REF	PART #	DESCRIPTION
301	P4002301	LEADSCREW (G4002)
301	P4003301	LEADSCREW (G4003)
302	P4002302	ROLL PIN 5 X 36
304	P4002304	THRUST BEARING 8103
305	P4002305	SHAFT
306	P4002306	KEY 5 X 5 X 14
308	P4002308	GEAR
309	P4002309	HEX NUT M12-1.75
310	P4002310	WASHER
311	P4002311	CAP SCREW M6-1 X 16
312	P4002312	COVER
313	P4002313	KEY 5 X 5 X 30
314	P4002314	KEY 5 X 5 X 10
315	P4002315	SHAFT
316	P4002316	BUSHING
318	P4002318	GEAR 16T/32T
320	P4002320	GEAR 16T/32T
322	P4002322	LEVER
323	P4002323	FEED ROD (G4002)
323	P4003323	FEED ROD (G4003)
324	P4002324	HEX BOLT M10-1.5 X 30
325	P4002325	BOSS
326	P4002326	ROLL PIN 5 X 40
327	P4002327	GEAR BOX
328	P4002328	PLATE
329	P4002329	CAP SCREW M6-1 X 16
330	P4002330	SHAFT
331	P4002331	E-CLIP 13MM
332	P4002332	SHIFT PIVOT
333	P4002333	PIN 4 X 30
334	P4002334	SHIFT YOKE
335	P4002335	CAP SCREW M6-1 X 12

REF	PART #	DESCRIPTION
336	P4002336	WASHER
337	P4002337	GEAR 16T
342	P4002342	COMBO GEAR 3PC SET
344	P4002344	GEAR 16T
345	P4002345	GEAR 18T
346	P4002346	GEAR 19T
347	P4002347	GEAR 20T
348	P4002348	GEAR 22T
349	P4002349	GEAR 24T
350	P4002350	GEAR 26T
351	P4002351	GEAR 28T
352	P4002352	GEAR 24T
353	P4002353	SHAFT
354	P4002354	KEY 5 X 5 X 75
355	P4002355	KEY 5 X 5 X 40
356	P4002356	BEARING 7000102
357	P4002357	GEAR 16T
358	P4002358	GEAR 32T W/BUSHING
359	P4002359	SHIFT LEVER
362	P4002362	KEY
363	P4002363	SHAFT
364	P4002364	HEX NUT M6-1
365	P4002365	SHAFT 16MM X 32MM
366	P4002366	SHAFT
367	P4002367	COMPRESSION SPRING 1 X 8 X 47
368	P4002368	SLEEVE
369	P4002369	HOUSING
370	P4002370	SHAFT
371	P4002371	CAP SCREW M8-1.25 X 8
372	P4002372	GEAR 15T
373	P4002373	GEAR 24T
374	P4002374	SHAFT

Apron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419-2
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419-2
415
438
424
407V2
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423
425
413
471
411
404V2
417
412
428
426
406
427
409
405
429
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403V2
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434
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402V2
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401V2
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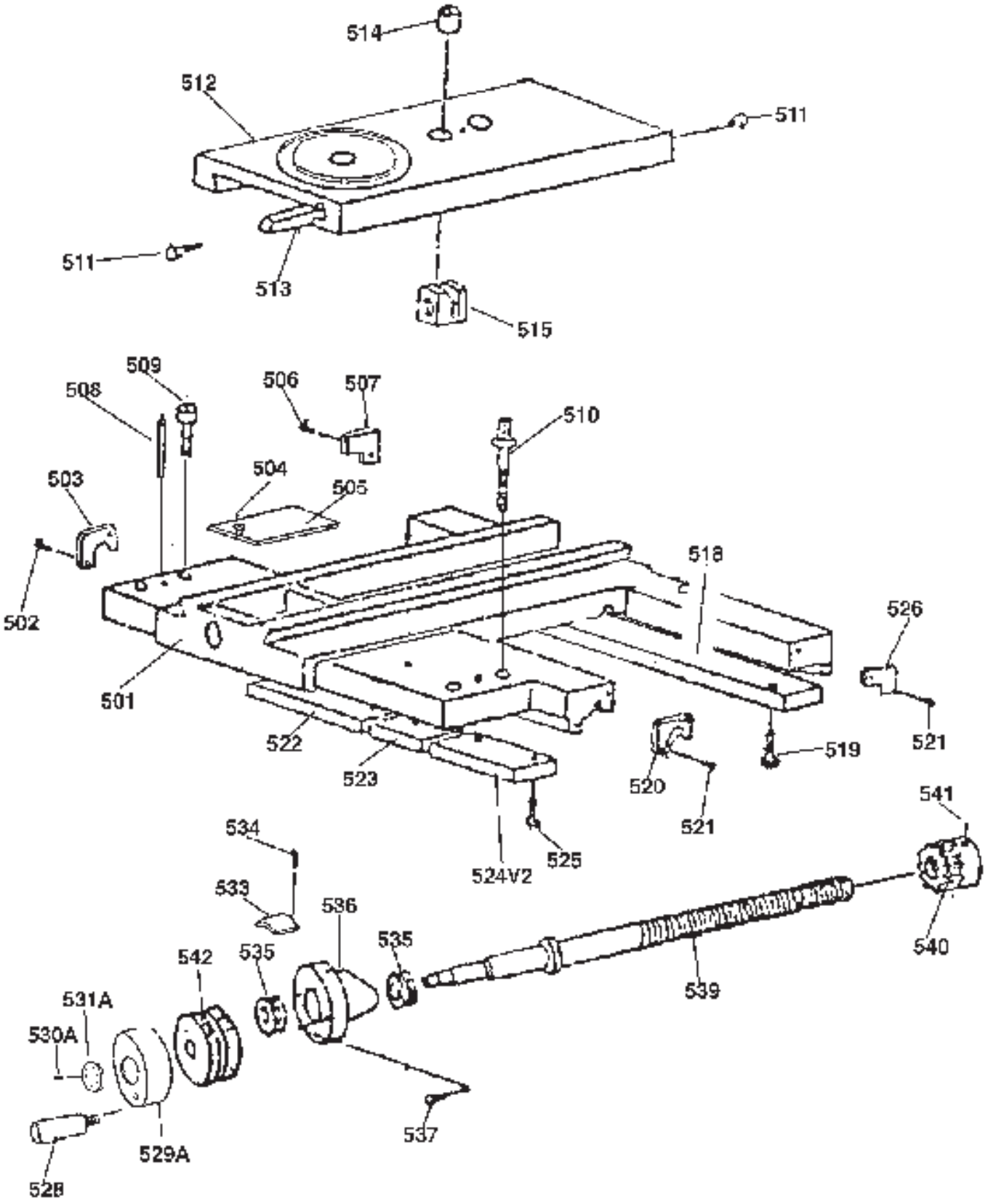
469
466

Apron Parts List

REF	PART #	DESCRIPTION
401V2	P4002401V2	HANDLE V2.08.12
402V2	P4002402V2	HANDWHEEL V2.08.12
403V2	P4002403V2	GRADUATED DIAL V2.08.12
404V2	P4002404V2	SET SCREW M6-1 X 8
405	P4002405	CAP SCREW M6-1 X 20
406	P4002406	BRACKET
407V2	P4002407V2	GEAR SHAFT V2.08.12
408	P4002408	BUSHING
409	P4002409	ROLL PIN 5 X 30
410	P4002410	GEAR 50T
411	P4002411	EXT RETAINING RING 19MM
412	P4002412	GEAR SHAFT
413	P4002413	GEAR 46T
414	P4002414	GEAR 51T
415	P4002415	ROLL PIN 5 X 30
417	P4002417	SHAFT
418	P4002418	BUSHING
419-2	P4002419-2	GEAR W/BUSHING AND SPACER
420	P4002420	SHAFT
420-1	P4002420-1	WORM GEAR
421	P4002421	WORM
422	P4002422	KEY 5 X 5 X 45
423	P4002423	ROLL PIN 5 X 24
424	P4002424	GEAR 14T
425	P4002425	BUSHING
426	P4002426	GEAR SHAFT B5 X 36
427	P4002427	LEVER
428	P4002428	ROLL PIN 5 X 24
429	P4002429	STEEL BALL 6MM
430	P4002430	COMPRESSION SPRING 1 X 4.5 X 6
431	P4002431	SET SCREW M6-1 X 8
432	P4002432	CAP SCREW M6-1 X 45
433	P4002433	BOSS
434	P4002434	WASHER
435	P4002435	CAP SCREW M6-1 X 40

REF	PART #	DESCRIPTION
436	P4002436	SHAFT
437	P4002437	SAFETY SHIFTER
438	P4002438	CAP SCREW M8-1.25 X 6
439	P4002439	COMPRESSION SPRING 1 X 4.5 X 6
440	P4002440	STEEL BALL 6MM
441	P4002441	BOSS
442	P4002442	ROLL PIN 6 X 40
443	P4002443	DOG
444	P4002444	CAP SCREW M8-1.25 X 30
445	P4002445	LEVER
447	P4002447	SHAFT
448	P4002448	CAP SCREW M6-1 X 65
449	P4002449	CAP SCREW M6-1 X 15
450	P4002450	GEAR 16T
451	P4002451	CAP SCREW M6-1 X 60
451-2	P4002451-2	SPACER
452	P4002452	HOUSING
453	P4002453	THREAD DIAL
454	P4002454	HEX NUT M6-1
455	P4002455	HEX BOLT M6-1 X 16
456	P4002456	HALF NUT 2 PC
457	P4002457	HALF NUT HOUSING 2 PC
458	P4002458	CAP SCREW M6-1 X 25
459	P4002459	GIB
461	P4002461	SHAFT
463	P4002463	GEAR 25T
464	P4002464	SET SCREW M6-1 X 6
465	P4002465	APRON CASE
466	P4002466	WORM BRACKET
467	P4002467	LIMIT BLOCK
468	P4002468	OIL PLUG M10-1.5 X 20
469	P4002469	SET SCREW M6-1 X 20
470	P4002470	SPANNER CAP SCREW
471	P4002471	KEY 5 X 5 X 20
1104	P40021104	OIL WINDOW 12MM

Saddle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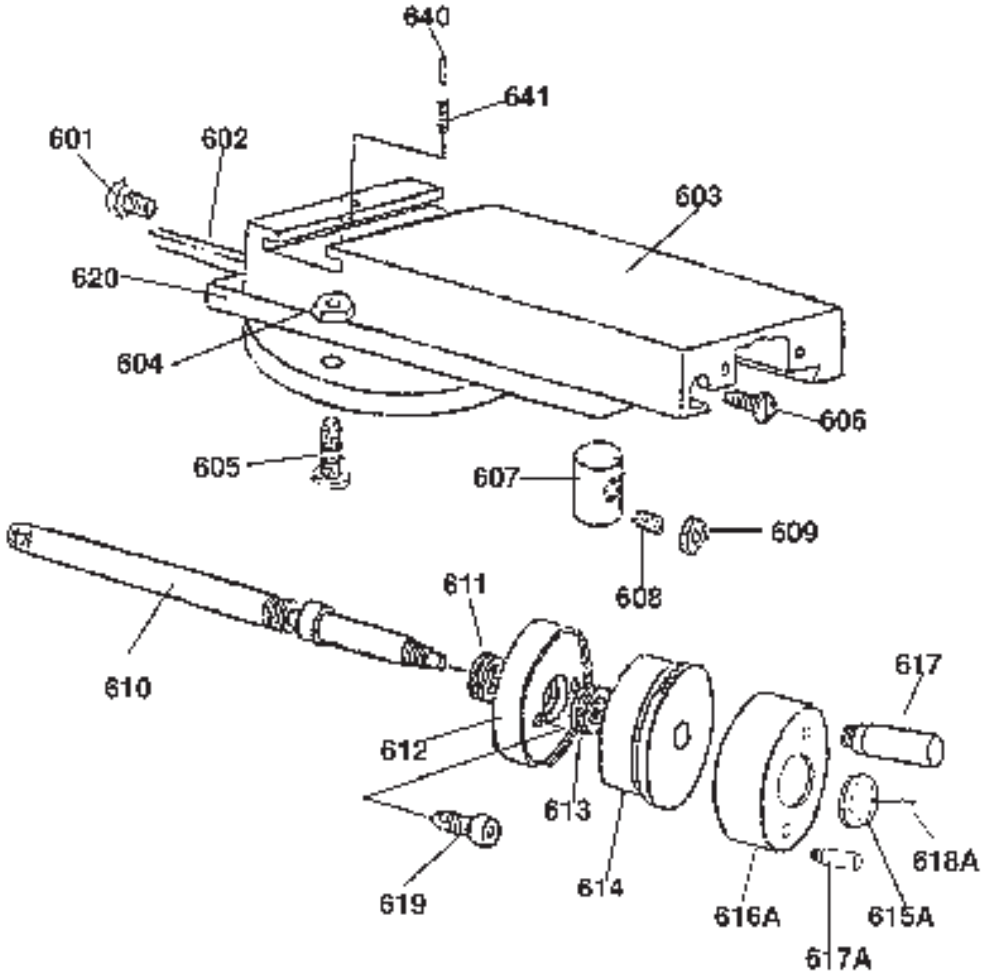
Saddle Parts List

REF	PART #	DESCRIPTION
501	P4002501	SADDLE
502	P4002502	PHLP HD SCR M3-.5 X 14
503	P4002503	SADDLE WIPER W/PLATE LEFT FRONT
504	P4002504	PHLP HD SCR 8-32 X 3/8
505	P4002505	COVER
506	P4002506	CAP SCREW M5-.8 X 14
507	P4002507	SADDLE WIPER W/PLATE LEFT REAR
508	P4002508	ROLL PIN 5 X 45
509	P4002509	CAP SCREW M8-1.25 X 35
510	P4002510	SCREW
511	P4002511	SCREW
512	P4002512	CROSS SLIDE
513	P4002513	GIB
514	P4002514	BUSHING
515	P4002515	CROSS SLIDE NUT M8-1.25, BRASS
518	P4002518	SLIDE PLATE
519	P4002519	CAP SCREW M8-1.25 X 25
520	P4002520	SADDLE WIPER W/PLATE RIGHT FRONT
521	P4002521	SCREW

REF	PART #	DESCRIPTION
522	P4002522	SLIDE PLATE
523	P4002523	SLIDE PLATE
524V2	P4002524V2	SLIDE PLATE 3 HOLES V2.01.09
525	P4002525	HEX BOLT M8-1.25 X 24
526	P4002526	SADDLE WIPER W/PLATE RIGHT REAR
528	P4002528	HANDLE
529A	P4002529A	BRACKET
530A	P4002530A	SET SCREW
531A	P4002531A	SPANNER NUT
533	P4002533	SIGN BOARD
534	P4002534	RIVET 2 X 3MM STEEL
535	P4002535	THRUST BEARING 51102
536	P4002536	BRACKET
537	P4002537	CAP SCREW M6-1 X 25
539	P4002539	CROSS SLIDE LEADSCREW
540	P4002540	GEAR 13T
541	P4002541	CAP SCREW M6-1 X 8
542	P4002542	DIAL

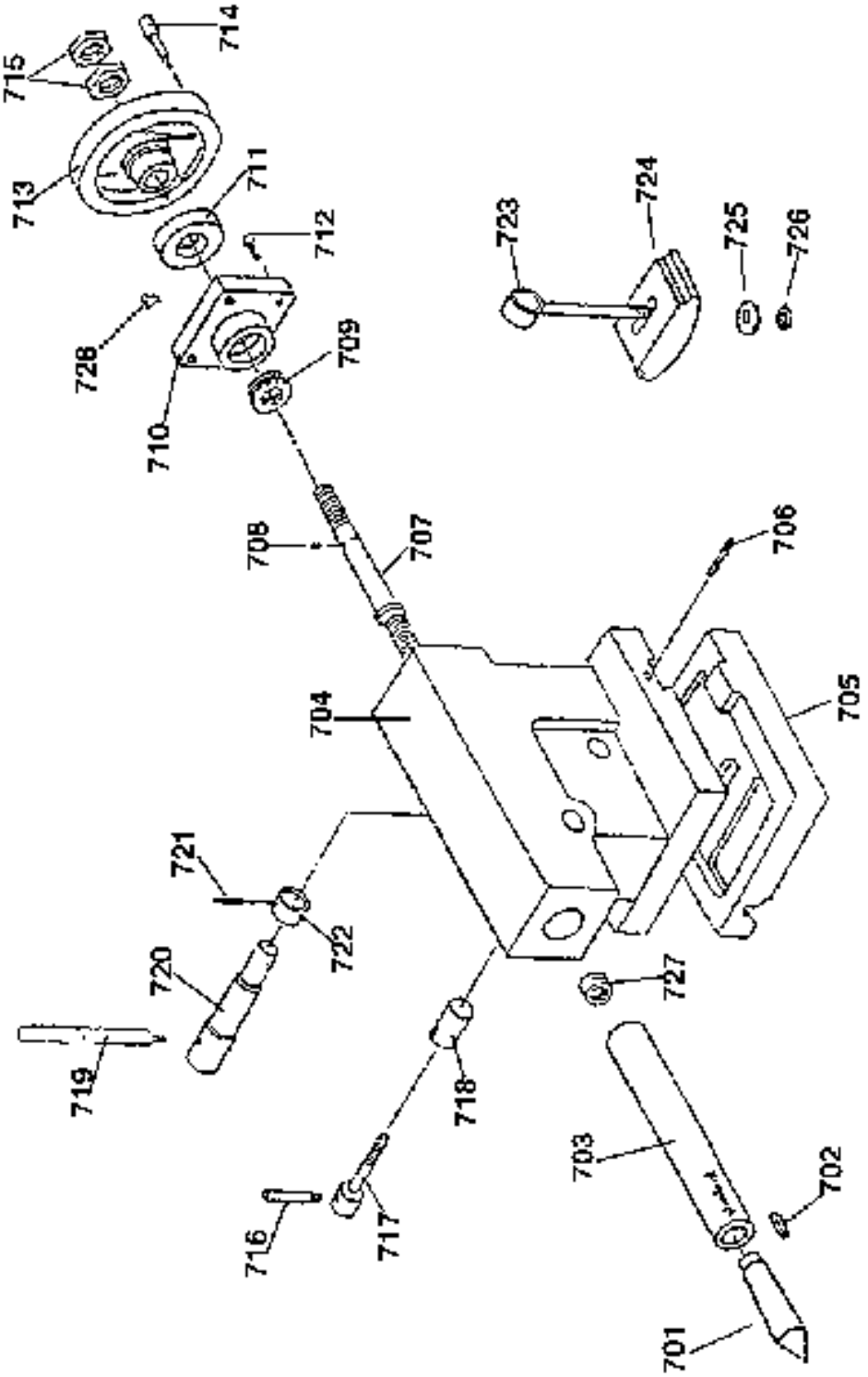
Compound Rest



REF	PART #	DESCRIPTION
601	P4002601	SCREW
602	P4002602	GIB
603	P4002603	COMPOUND SLIDE
604	P4002604	HEX NUT M8-1.25
605	P4002605	COMPOUND T-BOLT
606	P4002606	COMPOUND GIB BOLT
607	P4002607	LEAD SCREW NUT
608	P4002608	SET SCREW M6-1 X 8
609	P4002609	HEX NUT M6-1
610	P4002610	COMPOUND REST LEADSCREW
611	P4002611	THRUST BEARING 8101
612	P4002612	BRACKET

REF	PART #	DESCRIPTION
613	P4002613	THRUST BEARING 8101
614	P4002614	INDEX RING
615A	P4002615A	SPANNER NUT
616A	P4002616A	BRACKET
617A	P4002617A	SHORT HANDLE
617	P4002617	LONG HANDLE W/SCREW
618A	P4002618A	SET SCREW M5-.8 X 5
619	P4002619	CAP SCREW M6-1 X 15
620	P4002620	COMPOUND REST
640	P4002640	PIN
641	P4002641	COMPRESSION SPRING 1 X 5 X 12

Tailstock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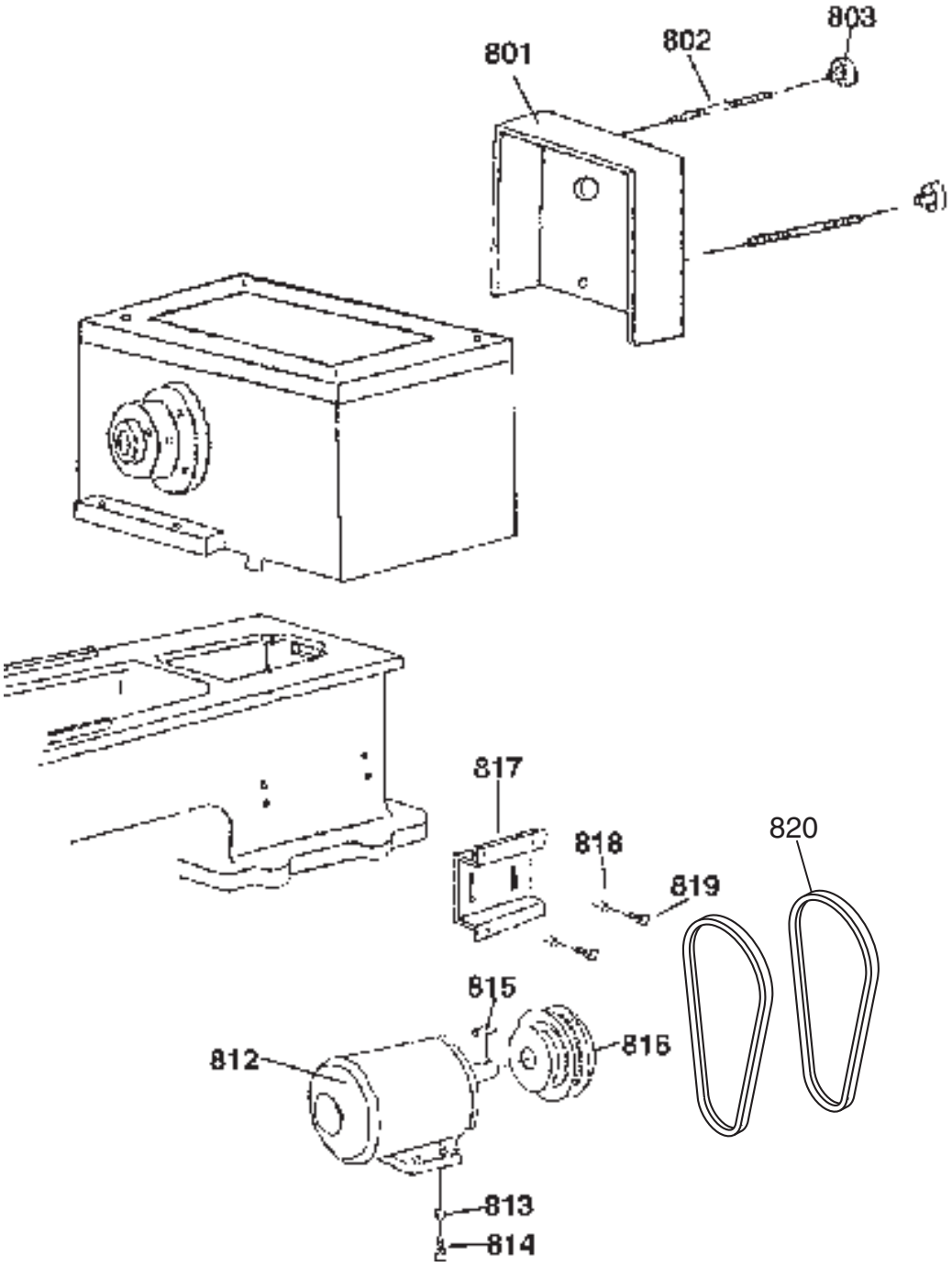
Tailstock Parts List

REF	PART #	DESCRIPTION
701	P4002701	CENTER
702	P4002702	KEY 8 X 30
703	P4002703	QUILL
704	P4002704	TAIL STOCK
705	P4002705	BASE
706	P4002706	CAP SCREW M10-1.5 X 50
707	P4002707	SCREW
708	P4002708	PIN B4 X 8
709	P4002709	THRUST BEARING 8101
710	P4002710	BRACKET
711	P4002711	INDEX RING
712	P4002712	CAP SCREW M6-1 X 20
713	P4002713	HAND WHEEL
714	P4002714	HANDLE

REF	PART #	DESCRIPTION
715	P4002715	HEX NUT M12-1.75
716	P4002716	HANDLE
717	P4002717	LOCK SCREW
718	P4002718	LOCK SHAFT
719	P4002719	HANDLE
720	P4002720	SHAFT
721	P4002721	ROLL PIN 5 X 30
722	P4002722	COLLAR
723	P4002723	SHAFT
724	P4002724	BASE SHOE BLOCK
725	P4002725	FLAT WASHER 12MM
726	P4002726	HEX NUT M12-1.75
727	P4002727	NUT
728	P4002728	INDEX

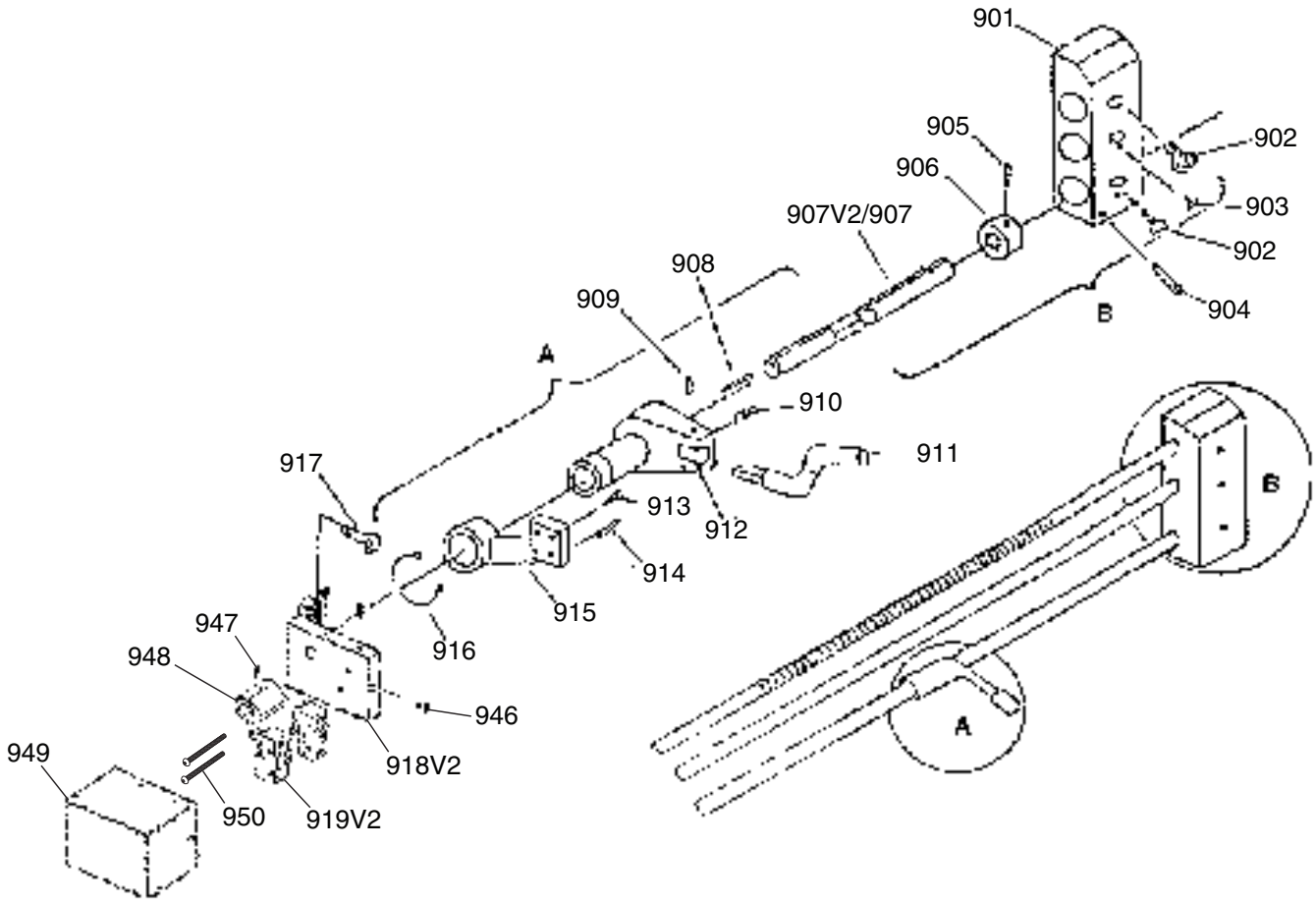
Motor Assembly



REF	PART #	DESCRIPTION
801	P4002801	COVER
802	P4002802	SCREW
803	P4002803	NUT
812	P4002812	MOTOR 2 HP 1.1KW V2.12.97
813	P4002813	FLAT WASHER 10MM
814	P4002814	HEX BOLT M10-1.5 X 30

REF	PART #	DESCRIPTION
815	P4002815	KEY
816	P4002816	PULLEY
817	P4002817	MOTOR MOUNT BRACKET
818	P4002818	FLAT WASHER 12MM
819	P4002819	HEX BOLT M10-1.5 X 30
820	P4002820	V-BELT A29

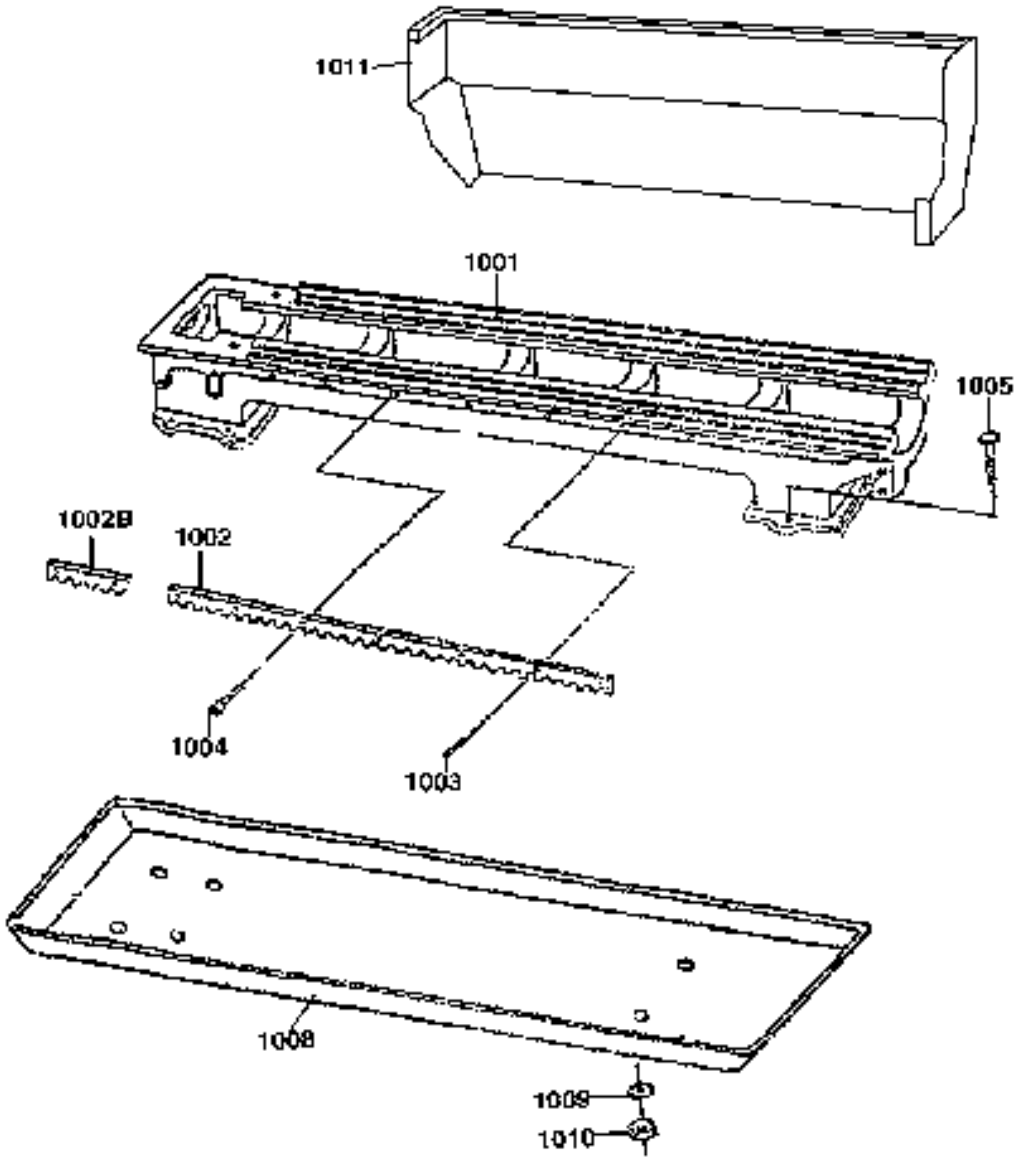
Feed Rod Leadscrew



p	PART #	DESCRIPTION
901	P4002901	BRACKET
902	P4002902	CAP SCREW M6-1 X 11
903	P4002903	OIL CAP 6MM
904	P4002904	ROLL PIN 6 X 55
905	P4002905	SET SCREW M6-1 X 6
906	P4002906	COLLAR
907V2	P4002907V2	SPINDLE ROD V2.12.14 (G4002)
907	P4003907	SPINDLE ROD (G4003)
908	P4002908	KEY
909	P4002909	ROLL PIN 4 X 20
910	P4002910	COMPRESSION SPRING 7020
911	P4002911	HANDLE
912	P4002912	BRACKET

REF	PART #	DESCRIPTION
913	P4002913	CAP SCREW M6-1 X 14
914	P4002914	ROLL PIN 5 X 25
915	P4002915	BRACKET
916	P4002916	EXT RETAINING RING 30MM
917	P4002917	CAP SCREW M8-1.25 X 25
918V2	P4002918V2	CONNECTION BRACKET V2.12.14
919V2	P4002919V2	SPINDLE ON/OFF SWITCH V2.12.14
946	P4002946	CAP SCREW M4-.7 X 6
947	P4002947	SET SCREW M6-1 X 8
948	P4002948	SPINDLE SWITCH ARM
949	P4002949	SPINDLE SWITCH BOX
950	P4002950	BUTTON HD CAP SCR M4-.7 X 45

Bed



REF	PART #	DESCRIPTION		REF	PART #	DESCRIPTION
1001	P40021001	LATHE BED (G4002)		1005	P40021005	CAP SCREW M12-1.75 X 40
1001	P40031001	LATHE BED (G4003)		1008	P40021008	CHIP PAN 18" x 53" (G4002)
1002	P40021002	RACK 16-1/2" LONG (G4002)		1008	P40031008	CHIP PAN 19" X 61" (G4003)
1002	P40031002	RACK (G4003)		1009	P40021009	FLAT WASHER 12MM
1002B	P40021002B	RACK 6-1/8" SHORT		1010	P40021010	HEX NUT M12-1.75
1003	P40021003	ROLL PIN 5 X 24		1011	P40031011	SPLASH GUARD 38" (G4002)
1004	P40021004	CAP SCREW M6-1 X 14		1011	P40031011	SPLASH GUARD 46" (G4003)

Grizzly Industrial, Inc. WARRANTY CARD

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Model # _____ Order # _____ Serial # _____

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1. How did you learn about us?

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____ Card Deck ____ Website ____ Other:

2. Which of the following magazines do you subscribe to?

____ Cabinetmaker & FDM
____ Family Handyman
____ Hand Loader
____ Handy
____ Home Shop Machinist
____ Journal of Light Cont.
____ Live Steam
____ Model Airplane News
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____ Popular Mechanics
____ Popular Science
____ Popular Woodworking
____ Precision Shooter
____ Projects in Metal
____ RC Modeler
____ Rifle
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____ Shotgun News
____ Today's Homeowner
____ Wood
____ Wooden Boat
____ Woodshop News
____ Woodsmith
____ Woodwork
____ Woodworker West
____ Woodworker's Journal
____ Other:

3. What is your annual household income?

____ $20,000-$29,000 ____ $30,000-$39,000 ____ $40,000-$49,000
____ $50,000-$59,000 ____ $60,000-$69,000 ____ $70,000+

4. What is your age group?

____ 20-29 ____ 30-39 ____ 40-49
____ 50-59 ____ 60-69 ____ 70+

5. How long have you been a woodworker/metalworker?

____ 0-2 Years ____ 2-8 Years ____ 8-20 Years ____ 20+ Years

6. How many of your machines or tools are Grizzly?

____ 0-2 ____ 3-5 ____ 6-9 ____ 10+

7. Do you think your machine represents a good value? _____Yes _____No

8. Would you recommend Grizzly Industrial to a friend? _____Yes _____No

9. Would you allow us to use your name as a reference for Grizzly customers in your area?
Note: *We never use names more than 3 times.* _____Yes _____No

10. Comments: _____

_____

_____

_____

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WARRANTY & RETURNS

Grizzly Industrial, Inc. warrants every product it sells for a period of **1 year** to the original purchaser from the date of purchase. This warranty does not apply to defects due directly or indirectly to misuse, abuse, negligence, accidents, repairs or alterations or lack of maintenance. This is Grizzly's sole written warranty and any and all warranties that may be implied by law, including any merchantability or fitness, for any particular purpose, are hereby limited to the duration of this written warranty. We do not warrant or represent that the merchandise complies with the provisions of any law or acts unless the manufacturer so warrants. In no event shall Grizzly's liability under this warranty exceed the purchase price paid for the product and any legal actions brought against Grizzly shall be tried in the State of Washington, County of Whatcom.

We shall in no event be liable for death, injuries to persons or property or for incidental, contingent, special, or consequential damages arising from the use of our products.

To take advantage of this warranty, contact us by mail or phone and give us all the details. We will then issue you a "Return Number,'' which must be clearly posted on the outside as well as the inside of the carton. We will not accept any item back without this number. Proof of purchase must accompany the merchandise.

The manufacturers reserve the right to change specifications at any time because they constantly strive to achieve better quality equipment. We make every effort to ensure that our products meet high quality and durability standards and we hope you never need to use this warranty.

Please feel free to write or call us if you have any questions about the machine or the manual.

Thank you again for your business and continued support. We hope to serve you again soon.

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